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THE PSYCHOLOGICAL CLINIC

A Journal of Orthogenics
For the Normal Development
of Every Child

Psychology **Hygiene** **Education**

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Editor:
LIGHTNER WITMER, Ph.D.,
University of Pennsylvania

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Orthogenics *concerns itself primarily with the causes and treatment of retardation and deviation, but it is by definition the* **science of normal development,** *and comprehends within its scope all the conditions which facilitate, conserve, or obstruct the normal development of mind and body.*

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The Psychological Clinic

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CLINICAL RECORDS.

BY LIGHTNER WITMER, PH.D.,

Director of the Psychological Clinic, University of Pennsylvania.

When asked for specimens of the record blanks which are used by the Psychological Clinic, my invariable answer is that we have none. I am often asked for a list of the tests which we employ at the Psychological Clinic. I do not furnish such lists, because I am in doubt whether there is a single test which I can recommend to be employed with every case which comes to the Clinic for examination.

The formula to be used in the clinical examination must necessarily vary with the type of case that is brought to me. For example, I may see one afternoon a child six years old, who comes because he cannot talk. This case I may diagnose on sight as he walks into the examination room. He is a mongolian imbecile of not higher mental grade than a low-grade imbecile. An examination with tests only serves to fix his mental status with greater certainty. The next child who appears is a girl fourteen years old who also does not talk, and the social worker who brings her thinks that she must be feebleminded. Her physiognomy, her expression, and a few simple exploratory tests, scarcely indeed to be called tests, demonstrate to my satisfaction that the child is almost totally deaf, and this physical defect accounts for her supposed feeblemindedness and lack of speech. The third case is a six-year-old boy who has never been to school, but who does in his head second grade problems in arithmetic. The social worker wants to know whether his mathematical ability is abnormal and how it may be cultivated if I should approve of this procedure. Another case is a boy in the high school, normal enough looking, with well set up parents who are financially able to provide for his orthogenic development. Their complaint is that he has no ambition. Careful testing shows that he is not able to do problems in arithmetic with the efficiency of the average boy in the fourth grade. While deficiencies in school accomplishments are adequately revealed, a three hour probe of the boy's pedagogical and physical history, combined with a painstaking mental examination, does not disclose sufficient mental inferiority to explain his inability to succeed in high school subjects. An additional observation involving the effort to teach him something, combined with a medical examination, for which he is sent to a competent neurologist, will be necessary before I shall be able to determine whether the boy is mentally incapable of attaining the social efficiency of a high school graduate.

My very early experience with cases at the Psychological Clinic revealed the necessity for keeping the examination in a fluid state. I acquired a fear of the formalism of a blank, especially a blank filled in by some more or less adequately trained assistant. Experience also led me to believe in the inefficacy of the quantified result of a test, as for example the Binet test. If some one reports to me that a fifteen-year-old child has a Binet age of twelve, I do not consider this fact as having by itself diagnostic value. It is an interesting statement, which however I would not risk making anything of, until I had further examined the child. I do not know of any single test on which I can rely for diagnostic purposes. Doubtless the report handed to me by a competent examiner that a fifteen-year-old child had a Binet age of six, would safely lead to the diagnosis of feeblemindedness, but usually in such cases an experienced examiner could make the diagnosis of feeblemindedness on sight. Why spend many minutes of valuable time with the Binet test or other elaborate mental tests to find out what one already knows?

We receive for purposes of examination at the Psychological Clinic, children who are by classification idiots, others who are imbeciles, cretins perhaps sixteen years of age with the height of a child of eight and the other symptoms of cretinism, others who are pronounced mongolians of all grades of mentality, or paralytic children who show in body and face the brain defect which is the cause of their mental inferiority. We see also children who appear physically and mentally normal, who lie or steal or are brought to us for sexual immorality. We see children who stammer or stutter, some of them profound cases of speech defect, some with nothing more than an infantile stammer in consequence of adenoids. We see also normal and supposedly extra-bright children, some of them brought to us to assist the parents in finding out what they are most fitted for in life, some of them brought to us as by the parent who said, "Yes, I know that my children are bright, but I have come to you to find out how to keep them bright."

I confess I do not know how to prepare a single formula of examination which will fit these diverse types of children, nor have I as yet studied these cases long enough to prepare different formulas to fit the classifications which it will some day be necessary to make. Moreover, life is short and we do not have time at the Psychological Clinic to do more than make an exploratory examination for the purpose of classifying the child, ascertaining his major defects and his capabilities, for the parent or teacher is waiting at the door of the Clinic to obtain from us some suggestions as to treatment. We have always held before us as an object of our work, the primary necessity of doing something for the child, and for those who are responsible for his welfare. Let us keep in mind the distinctive purpose of the Psychological Clinic. It is not, in my opinion, to study feebleminded or otherwise defective children. There are already experts in this field, and those connected with institutions for the various classes of defective children have presumably the best opportunities for their study. At least 50 per cent of the cases which have been brought to us are feebleminded children, but in my opinion these children are not our main concern. I am interested in the child who has a handicap, preferably a removable handicap. I believe that the clinical psychologist in conducting his examination must proceed directly to the work in hand. I want to know who brings or sends the child to the Clinic. Why is he brought? What do his parents or teachers complain of? I then proceed to find out whether the complaint is justified. If as usually happens I find that the complaint is well grounded (very rarely is a child brought to the Clinic except for some good reason), my immediate task is then to find out what has caused the child to give occasion for this complaint. For this purpose I inquire into the school history. If this does not adequately explain the situation, I find out from his parents what the child's life has been from birth. If I suspect that the cause is resident in the child, I seek to discover whether this cause was congenital, of uterine origin, or hereditary. Now one question, now another, will serve to make the situation clear, and give me material for a prognosis and the recommendation of treatment. Frequently when I find a proximate cause I do not search with great diligence for a more remote cause. If from the child's appearance I am led to ask the mother as to her condition during pregnancy, and I discover either that she had some disease like diabetes, or typhoid fever, or that she attempted to bring on a miscarriage, I do not inquire with the same minuteness into the father's and mother's history, for the purpose of discovering possible hereditary taint. Let every specialist stick to his own specialty. The psychologist's is certainly not the ascertainment of the physical causes of physical defects. He may go into these questions for his own enlightenment, or as a means of checking his own opinions, but his distinctive field of research is in my opinion the mental process, its normal unfolding, and the modifications which environmental influences may produce.

In every case, we are compelled to leave unsolved some problems of interest, many of them extremely important. For example, take syphilis as an etiological factor. In many borderline cases the Wasserman test will positively demonstrate the presence of what is called congenital syphilis. If we are leaving no stone unturned to improve the child, I should always have a Wasserman test made, and I am glad when the result is positive, because there is then one definite line of treatment which may be carried out with a hope of amelioration. If a child is a low grade imbecile, and syphilis is found to be present, the treatment may improve the child somewhat, but in most cases it will not make him normal. We have neither time nor money, nor has anybody else sufficient time or money, to have the Wasserman test made on every case. I therefore use my own judgment, based upon my findings and my experience, as to whether it is worth while for somebody to go to the trouble and expense of making this test. In my opinion exactly the same conditions prevail with respect to nearly every item which may be in a formula of examination, including the mental tests. Why spend or waste our time on tests which perhaps tell us no more than we knew before, or which may tell us something which will be of no help to us in treating the child? Let us have many questions in our formula, let us employ many tests, all the way from the simple sense tests to the Courtis tests, but do not let us become slaves to the items of our formula.

Of course there are questions which arise by the way, which could only be satisfactorily answered if the same formulary were applied to all children. For instance, I believe that syphilis is a cause of feeblemindedness in a certain percentage of cases, but I do not know in *what* percentage of cases. We are frequently asked,—In what percentage of cases is syphilis a cause of feeblemindedness? I can tell in what percentage of cases we have found syphilis, but this is not a scientific answer to the question. At one time, out of all the children whom I sent to a physician for a Wasserman test, one-third gave a positive reaction, but this only meant that one-third of the children whom I thought it worth while to send for this examination were proved to have syphilis. For the purpose of getting some light on this question, a number of consecutive cases were sent for the Wasserman test. It was then found that the percentage of syphilis in all these cases was no greater than the percentage of syphilis in the community. I had gone out of my way to make a statistical inquiry in an approved scientific fashion, and obtained a negative result so far as demonstrating the etiological significance of syphilis in cases of feeblemindedness. Nevertheless I think we have sufficiently clear evidence that it is a causal factor in some cases, and a clinical examiner must hold in the background of his mind the thought that it may be responsible in any case which he may happen to have under examination. If the Binet test, or the memory-span test, or the formboard test were applied in every case, doubtless we should get data of great statistical value, but this would be turning the Psychological Clinic into a bureau of statistical inquiry, and probably it would lack the means to perform this work well.

Some men of science, and more pseudo-scientific men, fail to criticize the fundamental bases of statistical data. For example, I saw a boy recently, one of nine children. The other eight children were normal, but at sixteen years of age he was stealing and would not work either at school or in industrial employment. I learned that the father of this child had been for a time a hard drinking man, and from the mother's statement had been at one time in a hospital for treatment for some condition due primarily to drinking. If I had found that his drinking had been at a maximum just before the birth of this child, I might have set this fact down as one bit of evidence of the effect of alcohol in producing degeneracy. As a matter of fact, this boy was the third child, while the father only began to drink after the birth of the fourth child, and his drinking was at a maximum at the birth of the eighth and ninth children. The five children born after he began to drink to excess are all reported to be normal. Here therefore are five cases demonstrating that normal children may be born of an alcoholic father. If we are to gather satisfactory statistics as to the influence of alcohol upon offspring, we must find out the alcoholic proclivities of the fathers of normal children. I do not know any scientific procedure by which we can gather statistics at the Psychological Clinic which will furnish satisfactory evidence on this point, excepting as I may produce now and then a well studied case in which every other possible cause of the child's degeneracy has been eliminated excepting the alcoholism of the father. I doubt the ability of any agency to do more than this by the statistical method and I look with skepticism on family and social statistics reported by physicians or gathered by eugenicists.* Several times I have had the experience of going with the greatest detail into the family history, and into the history of the mother during pregnancy, and have perhaps discovered some abnormality in the family of the father or mother. I have then had the mother when alone with me and in a confidential moment say, "I might as well tell you that when I said the other day that I had not tried to produce a miscarriage, I did not tell you the truth. I did try, and almost succeeded." This fact of course does not prove that there may not have been a hereditary taint in the family, but it suffices to show that if the hereditary taint was responsible for the child's condition, there was no proof of the fact, because the attempt at miscarriage as a proximate cause was adequate to explain the child's condition. We do not ask in every case whether the mother attempted to bring on a miscarriage. We ask it often, but only when we think the fact would directly assist us in understanding the case. If I put this question in a formulary and have an assistant ask it, I am simply wasting paper, ink, and my assistant's time, besides producing statistics which may be misused, as so many statistics of heredity are misused today, to uphold unsound contentions and to urge legislation of doubtful social value.

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*That parental alcoholism is a cause of degeneracy in the offspring can be positively demonstrated only from experiments on the lower animals. That it is the cause of the feeblemindedness of a particular child can be stated only with some degree of probability, usually a very low degree of probability and combined with other causes having an equal degree of probability. In what percentage of cases it is the determining factor can never be ascertained from data collected by methods in common employment today.

All this for the purpose of introducing the following statistical treatment of the data of forty clinical records. This report was prepared for me by the Social Service Department of the Psychological Clinic. The department consists of a head social worker, an assistant social worker, and a recorder.* The recorder who is also a stenographer, is present at all examinations, takes down such matters as may be dictated to her by the clinical examiner, and briefs all the conversations in the shape of questions and answers which may be had between the examiner and the parents or others who bring the child. The recorder is also enjoined not only to put down the results of tests, but to make observations of the child's behavior. When these are important, the examiner specially indicates those which he wishes to make sure will be recorded. In addition the record usually contains reports of visits to the home and school. I consider this part of the history of equal importance with the examination made at the Clinic. The following report, however, concerns itself chiefly with the data obtained at the examination, and for the most part only at the first examination. This report was prepared in the first instance for the information of clinical examiners, to find out what was actually contained in the records and if possible to serve as a basis for standardizing the records. The report has confirmed my opinion that this standardization would be undesirable.

Year by year a change is manifest in the clientele of the Clinic.

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*Dr. Louise Stevens Bryant, Head Social Worker; Miss May Ayres, Acting Head Social Worker; Miss Cyrena Martin, Assistant Social Worker, and Miss Marguerite Lazard, Recorder, at the time the report was prepared. Miss Ayres compiled and wrote the report.

We are seeing fewer feebleminded children, and more whom we diagnose as normal. Recently the Psychological Clinic has been examining cases with a view to vocational guidance. I consider that this gradual improvement in the mental quality of our cases is a most hopeful sign, because it is with these cases that a psychological diagnosis can be made most helpful. We are therefore justified, I think, in reducing the time which we give to the diagnosis of feebleminded children to a minimum, so as to spend more time on the cases we can help. I feel also that we have in the larger proportion of normal children who are now being brought to us, a demonstration of the appreciation of the work which we are trying to do, namely, to keep our attention firmly fastened upon helping the child. We cannot help feebleminded children much, excepting as through our social service department we may assist parents in placing these children in institutions, but we can help greatly children of normal grade, who are handicapped in school or in the struggle for existence.

The forty records are of children who were diagnosed as follows:

Diagnosis	Number.	Per cent.
Normal	11	27.5
Physically defective	1	2.5
"Speech"	2	5.0
Borderland	1	2.5
Moral delinquent	3	7.5
Feebleminded, all grades	14	35.0
Deferred	6	15.0
Not stated	2	5.0

In view of the wide range of intelligence shown by the forty cases, the figures in the following report can have little or no significance. You can calculate the average weight of eleven elephants and fourteen mosquitoes, but your average will not mean much. Moreover, the forty cases were chosen at random from 1000 cases, and the statistical results might be supposed to represent the thousand cases. As a matter of fact, the forty cases are too few to give quantified data for the entire series,—at the most they indicate the items of examination which we are ready to enter on our records if the case appears to justify the making of a permanent record of such items. I publish this report because it may prove helpful to some as an indication of what we have found gets recorded when cases are examined and records kept under limitation of time and of professional and clerical assistance. The report is published in the main as written by Miss Ayres. Some changes have been made, for which Miss Ayres is not responsible, but some opinions and conclusions remain with which I am not in agreement.

A. GENERAL EXAMINATION

One thousand cases were taken as a basis, and a cross section made of them by pulling from the files every twenty-fifth case from 300 to 1300. These cases covered a period of nearly three and a half years—from October, 1910, to February, 1914. Where the case in question presented unusual conditions the next higher or lower was chosen—for example, cases 1075, 1076, and 1077 were from an institution and nothing could be learned about their family histories. Therefore case 1078 was chosen as more representative of regular clinical work. The selection of cases was made without reference to mental examination, as it was assumed that equal opportunity existed for giving mental examinations in every case.* The forty cases chosen in this way included twelve girls and twenty-eight boys—the normal proportion as found by Dr. Bryant in an earlier report.

These forty cases were analyzed to find out what information our records give under each of three separate heads, the first of which is the General Examination. In selecting the facts to be tabulated in the General Examination, questions were omitted which would apply only to a limited number of the cases, for example the question as to whether or not a child was a truant, was omitted because in many cases the child could not be a truant. The tabulation has been made under eleven heads:

A-1 Name, age, address, by whom sent, and by whom brought.
A-2 Diagnosis.
A-3 Recommendations.
A-4 Preliminary report.
A-5 School history.
A-6 Medical history.
A-7 Babyhood.
A-8 Birth.
A-9 Family history.
A-10 Mother's history.
A-11 Father's history.

The analysis attempted no more than to discover what information was secured and how it was recorded. It was an endeavor to ascertain what the points were which the different clinic examiners regard as most significant, and which tests they feel are of the greatest value. Is there any body of questions asked alike by all the examiners? Is there any uniformity of opinion on their part as to the value of different data?

The General Examination is usually made by the psychologist, although when he is busy with other cases the social service workers may make it for him. It consists of the eleven parts noted. Much of the information is gathered from the parent or guardian at the time of the child's first visit. Some of it is secured by visits to the home and school. Information is frequently added by correspondence, or on subsequent visits to the Clinic.

The results of the General Examinations are recorded under these eleven main heads. Tabulation has been made of the presence or absence of information under each of sixty-one sub-topics considered as of general applicability to all cases. Since the analysis covers forty records, there should be forty times sixty-one items of information, or a total of 2440 items, if the record were entirely complete in every case. How nearly the existing records approximate this impossible ideal is shown in the following summary tabulation:

---

* Theoretically this assumption may be justified, but practically many diverse conditions modify this equal opportunity to make a mental examination in a given case.—L. W.

Information asked.	No. of answers.
1. Name	40
Age	40
Address	39
Brought by	39
Sent by	29
2. Diagnosis	34
3. Recommendations	
Physical made	24
Physical followed	9
Other made	30
Other followed	16
4. Preliminary report	
Why brought	37
Playmates	9
Nervous	16
Disposition	19
Enuresis	9
Masturbation	7
Dresses self	13
Recreation	11
5. School	
Grade	33
Started	29
Progress	33
6. Medical	
Health	36
Convulsions	13
Sores	8
Accidents	14
7. Babyhood	
Walk	26
Talk	27
First Tooth	13
8. Birth	
Natural	21
Full time	13
Weight	5
Blue baby	6
Health	9
Different	4

Information asked.	No. of answers.
9. Family history	
Children living	40
Children dead	25
Miscarriages	12
Ages	25
Which is this	31
Others backward	19
Others healthy	16
10. Mother's history	
Mother living	37
Abnormal	10
Health now	21
Health pregnant	19
Age at child's birth	8
Works	11
Drinks	5
Nationality	7
Married before	3
Relatives healthy	26
Relatives abnormal	14
11. Father's history	
Father living	36
Abnormal	9
Healthy	26
Nationality	6
Works	14
Drinks	7
Relatives healthy	17
Relatives abnormal	10
Married before	6
Total answers	1171
Total possible answers	2440
Per cent of possible	48.0

During the three and a half years covered by the cases examined we find that in general less complete records were kept during the first year. After the slight increase at the end of the first year the rate remains the same during the two and a half years following.

The sixty-one questions tabulated were supposed to apply equally to all children brought to the Clinic. Of these three have received attention and been recorded in every case: The name of the child has been given; the age of the child has been given; the question has been raised as to whether the child has brothers or sisters.

Section 1 of the General Examination consists of five points—name, age, address, brought by, sent by.

This section is by far the most complete of all in our tabulation. The psychologists have all agreed on the importance of the five topics. Under the heading "sent by" there are a good many omissions, probably due to the fact that many children are brought to the Clinic by the same people who sent them, and no need has been felt of repeating the name in the second case.

Section 2 of the General Examination shows whether or not a diagnosis has been made. In six of the cases examined there is no record of any diagnosis. In five, diagnosis has been "deferred." This topic is treated more at length under the text relative to mental examination.

Section 3, Recommendations.

In four out of forty cases no recommendations of any kind have been made. In twenty-two, physical recommendations have been made, but they are recorded as having been carried out in only nine. Other recommendations are recorded as having been made in thirty, and carried out in sixteen cases.

The discrepancy between the percentages of recommendations made and recommendations carried out is probably due to two factors—(*a*) a large proportion of our cases are brought to us by outside agents upon whom devolves the responsibility of carrying out recommendations which we have made. It is usually difficult to secure complete "follow-up" histories of these cases. (*b*) The Social Service department should have as part of its files a "follow-up" system. This work would be of real scientific value. Its need is evident; but the labor entailed is such that the system cannot be installed until a larger number of trained assistants are available.

Section 4, Preliminary Report.

A preliminary report is usually secured at the time of the child's first examination at the Clinic. In general it answers the question "Why is this child a special problem?" In very nearly all cases the definite question "Why was he brought?" is asked. In less than one-half of the cases the examiner goes more into detail and asks "What is his general disposition, and is he easy to get along with? Is he nervous? Can he dress himself? What does he do to amuse himself?" In less than one-fourth of the cases the questions are asked, "Does the child have enuresis? Is he a masturbator? Does he like to play with other children, and are they older or younger than himself?" In only one of the cases analyzed is the preliminary report entirely absent.

Many other questions are asked in this preliminary examination. In tabulating an effort was made to record only those questions which were of general application. In looking over the files we find the questions "Does he steal? Does he run away? Does he lie? Does he show other immoral tendencies?" These questions are important, but apply to only a limited number of cases. It might be of value to make a more detailed study of high grade imbecile and borderline cases among adolescent boys and girls in order to determine what further questions should be added to the regular examination of these cases.

Section 5, Pedagogical History.

Information with regard to pedagogical history is usually secured from the parent, although corroborative details may be obtained by visits to the school. In general the school records are very full. In over three-fourths of the cases information is given as to the child's grade and the progress he has made in school. In over half of the cases a record is also given as to the child's age when he started school. There is but one case where no questions of any kind appear to have been asked. Where the child never attended school, and a statement has appeared on record to that effect, the case has been tabulated as giving positive information.

Section 6, Medical History.

Fairly careful investigation has been made of the child's general health. In only three out of the forty cases tabulated have no questions been asked. Much less attention has been paid to whether the child ever suffered from convulsions, whether wounds heal easily, and whether the child has had falls or accidents.

Section 7, Babyhood.

The report on babyhood has been rather meagre. In a third of the cases there is no record of any questions having been asked. From one-half to three-fourths of the cases show some record of the time when the baby first walked, and when he first talked. Record as to the first tooth occurs in less than half the cases.

Section 8, Birth.

There are many cases in which no questions have been asked concerning the birth of the child. In seventeen of the forty cases no records are shown. The questions most frequently asked, "Was the birth natural?" "Was it full time?" are recorded in only a little over one-fourth of the cases. Other questions as to weight, "Was he a blue baby? Was he healthy? Was he different from the other children?" have been asked and recorded in less than one-fourth of the cases.

Section 9, Family History

Careful efforts appear to have been made to secure full family histories. In every case examined there is some record. In two of the cases the only record given is in answer to the question, "Are there other children living?" The next question most frequently asked is: "Which is this child?" In over a half of the cases attempt has been made to ascertain the ages of the other children, and whether any children in the family have died. Questions as to miscarriages, the health of other children, and whether the other children are peculiar in any way, occur in from one-fourth to one-half of the cases.

Section 10, Mother's History.

There are two cases where nothing has been asked about the mother, and in three there is no record as to whether or not the mother is living. The questions most frequently asked are, "What is the mother's health now, and are her relatives healthy?" In from one-fourth to one-half the cases the questions were asked, "Has the mother any peculiarities? Was she healthy when she was carrying the child? Does she work? Are any of her relatives peculiar?" Data as to mother's age when the child was born; whether mother uses intoxicants; whether she was married before; and her nationality, are asked for and recorded in less than one-fourth of the cases.

Section 11, Father's History.

In two cases nothing is said of the father's history. In four cases no note is made as to whether he is now living. Next in frequency is the question as to his health at the present time. In less than half of the cases is there mention of whether he works, whether his relatives are healthy, or whether there are abnormalities among his relatives; and in less than one-fourth of the cases examined is there record as to whether the father is peculiar in any way; whether he uses intoxicants; whether he has been married before; and his nationality.

B. PHYSICAL EXAMINATION.

Twenty-five points were tabulated under the heading Physical Examination. Several of these points are likely to be regarded by clinicians as unimportant. They have been recorded only once or twice in cases examined. Report has been made on these topics not because a criticism is implied if they are not tabulated as having been noted, but because these points all appear on the physical examination sheet which has been freely used as Clinic record. The following is a list of physical points noted in the order of their frequency.

Point noted.	Number of cases in which point is noted.
Anthropometric measurements	26
Eyes	24
Hair	23
Forehead	19
Teeth	19
Nose	18
Throat	18
General appearance	17
Ears	16
Trunk, limbs	15
Heart	15
Lungs	14
Palate	13
Shoulder blades	13
Hands	12
Head	11
Tongue	9
Glands	9
Blood test	9
Genitals	6
Protuberances	6
Rachitic	4
Jaws	2
Pelvis	1
Arches	1
Total	323
Total possible	1000
Per cent of possible	32.3

The first record studied comes in October, 1910. The following year, October, 1911, to October, 1912, records are a little over one and one-half times as full as in the years before and after. From May, 1913, through February 1914, physical examinations are less full than they have ever been before.*

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* At the present time physical examinations are still less complete, because the mental grade of the cases is higher and the mental examination is crowding out the physical examination.

The Physical Examination contains twenty-five points which were selected because they appear on the Physical Examination blank which has been used freely in record making.

In three of the forty cases tabulated no physical examination has been made. In six either no examination has been made or there is simply a record of a blood test. Under the heading "anthropometric measurements" records have been marked as giving positive information which gave even one measure, such as weight; although the general caption would include height, weight, chest girth, and head girth. The points most commonly noted in the physical examination are one or more of the anthropometric measurements, the hair, and the eyes.

C. MENTAL TESTS.

In tabulating this portion of the records, only those tests were included which were recorded in at least two of the cases. There were thirty-three of these tests if we include in that number the Binet tests as one, and general observations as another. In the descending order of the number of records in which they appear, they are as follows:

Test.	Cases.	
Form board	20	
Binet-Simon test (complete)	18	
Arithmetic	17	
Copy with pencil or crayon	15	
Color discrimination	15	
Color naming	15	
General observations	14	
Writing	14	
Reading	9	
Memory span for digits, auditory	9	
Spelling	8	
Definitions	7	
Memory span for letters and digits, visual	6	
Reproduction of passage read	5	
Opposites	4	
Count blocks	4	
Make change	4	
Compare weights	4	
Recognize absurdities	3	
Interchange clock hands	3	
Count backward	3	
Describe pictures	3	
Picture form board	3	
Association test	3	
Attempt to teach	2	
Rhyme (Binet-Simon)	2	
Reconstruct sentence	2	
Three words in sentence	2	
Sixty words in minute (Binet-Simon)	2	
Give value of stamps (")	2	
Name days of week, months of year, give date, etc.	2	
Tell time	2	
Design blocks	2	224

Although there are records of 224 tests having been given to the forty children, this does not mean that each child was given five or six tests. An analysis of the data shows that they do not cluster around any central tendency. When the cases are listed in the order of the number of tests given, it is found that at one extreme are six cases where no formal mental tests were given, while at the other extreme there is one child who was given twenty separate tests. The frequency distribution of the number of children receiving each specified number of tests is as follows:

No. of tests.	Cases.
0	6
1	5
2	3
3	2
4	3
5	3
6	3
7	4
8	1
9	2
10	1
11	1
12	2
13	2
17	1
20	1
224	40

Since it would be unfair to assume that in these cases a truly complete record would be one showing that the child had been given every test, it is impossible to make a comparison between the possible number of items of information and the number actually found.

The record frequently shows much less than the psychologist has ascertained. Often the psychologist has in mind facts which may form an adequate basis for a diagnosis but if he does not dictate these facts to the recorder and if the recorder is not aware of them herself, no evidence appears in the record which would seem to justify the diagnosis given. Often tests are used and no record made—for example, the pegging board is frequently employed as a test, yet only once in the cases examined is it mentioned.

It would seem necessary for clinicians to consider this question of recording at some length, in order to decide what should invariably be dictated by the examiner, and what should be left to the discretion of the recorder. If no such definite understanding exists between the recorder and all the examiners, an unfair burden of responsibility will rest upon her; for she will either be obliged to act as an assistant clinical psychologist, making judgment as to the child's responses, or else she will be guilty of omitting from the records information of importance which would be desirable at a later time if the accuracy of the diagnosis were called into question.

Only those mental tests were considered which were noted in at least two of the cases examined. Had every test given once been included there would have been a total of forty instead of the thirty-three headings.

Diagnosis.

Six of the cases were undiagnosed. Four had a diagnosis given which was not a diagnosis; for example—"speech" is not properly a statement of mental grade, but has been used several times as a diagnosis.*

Section 13, Binet Test.

The Binet test ranges next to the form board in popularity, since it is used in nearly one-half of the cases. In general, definite statements are given as to the mental age, and not infrequently one or more quotations are included. Where quotations are given they are usually entered upon the scoring sheet. In only three cases has the Binet test been given by the same person who conducted the rest of the mental examination.

Section 14, General Observation.

Sections 14 and 15 have been placed first among the mental tests, because they are essentially different in character from the others. Section 14 is the record of statements made by the psychologist of conditions under which the examination was made, or of the child's reactions and general attitude during the test. Where such statements have been given, they are generally specific in nature. In twenty-six of the forty cases they have been omitted altogether.

Section 15, Attempt to Teach.

There are very few records of any attempt having been made to teach the child during the examination. It is not improbable that such efforts have been made, but that they have been recorded in such a way as to indicate the child's fund of knowledge rather than his ability to learn. In only two of the cases examined has any attempt to teach been recorded as such.†

Section 16, Form Board.

The form board is the most popular of all mental tests. It occurs in fifty per cent of the cases. In one-half of the trials the time is recorded, and in one-half a specific statement as to the child's performance is given.

Section 17, Mental Tests with Samples or Quotations.

The remaining mental tests have been divided into two parts—Section 17, tests where quotations or samples of the work might be secured; Section 18, other mental tests. The tabulation under the heading "copy" should properly be considered in connection with the Binet test, for in most, though not in all cases, the entry under "copy" means the drawing of a diamond or other Binet figure. Not infrequently, however, the child is asked to draw the square or diamond, although he has not been given the regular Binet tests, and for this reason "copy" was made a separate heading.

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* "Speech" means a case we would take on as a training case at our speech clinic—must be mentally normal. It is therefore a satisfactory diagnosis for our purpose.—L. W.

† In many cases, the "attempt to teach" plays an important part in the examination and is recorded at great length. In fact I consider the psychological diagnosis as distinguished from the "diagnosis of classification" incomplete without the results of an "attempt to teach." It happens that the selection of the forty cases provided only a few of those in which an attempt to teach was possible or worth while.—L. W.

Of 361 entries under Section 17 eleven per cent consist of samples or quotations without comment; three per cent of samples or quotations with comment.

Section 18, Other Mental Tests.

One of the most popular tests, occurring in fifteen cases, is that for color naming and discrimination, the only test under Section 18 which is used in more than one-fourth of the cases.

Pedagogical Tests.

Sections 17 and 18 contain together several headings which may properly be grouped under the title "pedagogical tests." Here we find arithmetic and writing are tested in between one-fourth and one-half of the cases, and spelling and reading in less than one-fourth. Arithmetic ranks next to the Binet test in popularity. It is recorded in seventeen of the records examined. Writing is recorded in fifteen cases; reading in nine cases; and spelling in eight cases.

GENERAL SUMMARY.

As stated at the outset, the object of this analysis was to discover through an intensive study of a small number of cases chosen by random selection, what information is secured about each case and how it is recorded. It was an endeavor to ascertain which items of information the different examiners regard as most significant; and if possible which tests they find most frequently applicable. The study has yielded only moderately definite answers to the questions, for the reason that it has brought to light a great variability in the amount and kind of information recorded, and but slight consensus of practice in the manner of making the records.

In the portion of the records devoted to general information, it is found that among sixty-one items the number of answers recorded in the forty cases ranges from forty down to three. The average number is nineteen; and the total number of items recorded is 48 per cent of what it would be if all of the information were recorded for every child. The records are scattered over the past three and one half years, and the study shows that the number of items of information in the general examination was nearly as large at the beginning of the period as at the latter end.

The results of physical examinations are recorded under twenty-five heads, and if they were noted in every case there would be forty entries under each head to cover the forty cases. In point of fact the number of answers ranges from twenty-six down to one; the average is thirteen. The total number of items of information is 32 per cent of the total possible number. Here it appears that the records were distinctly more complete three years ago than they are now.

The records of the mental tests are far more scattered than those of the general and physical examinations. Among the forty cases there are records of thirty-three different tests having been used. The most frequent of these was used twenty times, while the least frequent was used only twice. The average number of tests per child was between five and six, but an individual tabulation shows no tests at all recorded in six cases, while in one case there are records of twenty tests having been given to one child. The other cases are scattered between these two extremes. The number of mental tests given appears to have increased during the early part of the period studied, and subsequently remained nearly stationary.

One of the reasons for undertaking this study of 1000 clinical records was to secure a list of questions and tests upon which clinicians were so generally agreed, that it might be used as a minimum standard for all examinations. It seemed that a fair model examination blank could be compiled by selecting those questions which had been asked in at least three-fourths of the records examined. When we summarize the results of the tabulation we find that the study has been fruitless so far as the making of such an ideal list is concerned.

NEED FOR CORRELATION OF BINET-SIMON TESTS WITH OTHER TESTS OF DOING.

By Eleanor Keller,

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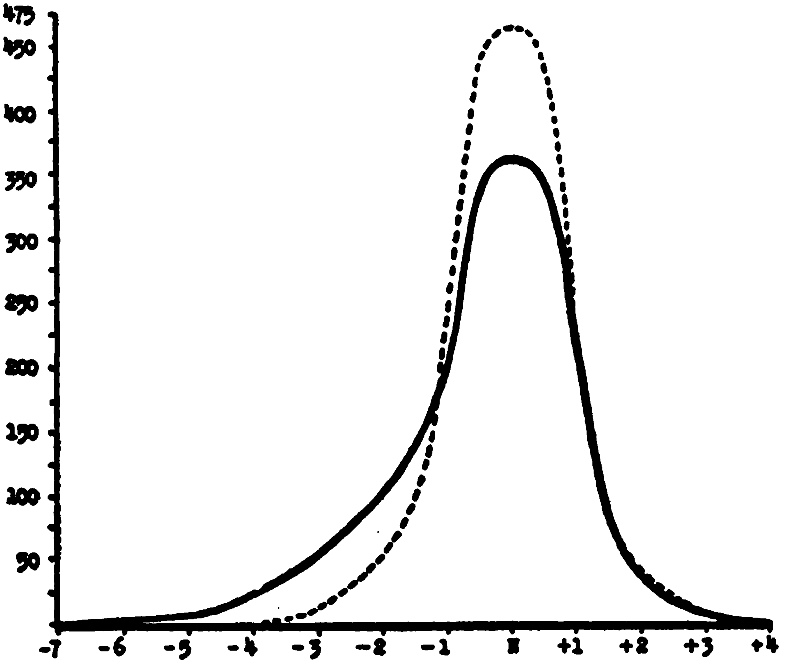
The standardized tests for intelligence that have won the widest recognition are doubtless the Binet-Simon tests. These as used generally in the United States are the result of a gradual development. In 1904 Paris required the selection of all the mentally defective children in the public schools, to be ascertained by individual examination of pupils. For this purpose Binet and Simon chose from many tests a certain number arranged in the order of increasing difficulty, and tried them out on a selected group of children of pedagogically average intelligence. Ten children of each year, three to seven, and fifteen of each year, seven to twelve, were chosen. The tests were then arranged in groups to suit each age. To adapt this scale to testing feebleminded children, the inmates of the Salpêtrière were examined with it. The results correlated well with the classification previously made by diagnosticians who had devised tests from their experience with feebleminded children. Binet was anxious to secure a uniformity of diagnosis into which the personal equation of the examiner would not enter. He was a student of language development, and believed that steps of intellectual progress are well marked by language ability. He divided all feebleminded into three groups: (1) idiots, in whom the power to express thoughts by language is wanting, their wants being made known by gestures or grunts; (2) imbeciles in whom the power of speech is often very poorly developed, isolated words or short, broken sentences frequently suffice, though the higher imbecile may speak as well as the next class but power to read or write it lacking; (3) lastly the morons who in addition to speaking can also read and write. While there are no hard or sharp lines of division between these classes, the idiots are grouped as one or two years old, the imbeciles as three to eight, and the morons as eight to twelve. In Binet's opinion, if there is congenital brain defect causing feeblemindedness, the subject does not pass into adolescence. Twelve years of age evidently marks for Binet the dividing line between childhood and adult life. Binet and Simon, assisted by their students, revised this scale again and again from 1904 to 1911.

In America Goddard in Vineland, Huey of Johns Hopkins, Whipple of Cornell, Wallin of Pittsburgh and Terman of Leland Stanford University have changed and adapted these tests for use among American children. Previous to 1910 Goddard tested his translation and arrangement of the Binet-Simon tests on 400 feeble-minded and about 2000 normal children.[1]

Dr. Leonard P. Ayres of the Russell Sage Foundation has compared the results of Goddard's tests of 1547 normal children with his own results, gathered by him, showing the progress of children in the public elementary schools of twenty-eight American cities. Dr. Ayres has marked as normal all children who have covered the seven grades in seven years; those who have completed the same in six years as one year in advance; those taking eight years as one year behind; those taking nine years as two years behind, etc. When *all* reports are massed we get a normal curve for all cities; but by doing so we cover up the many variations in the different



Distribution curves showing variations from normal of 1547 children tested by the Binet-Simon scale (solid line) and 14,762 children in 28 cities rated by their progress through seven grades (dotted line). Curves based on relative figures showing distribution of 1000 cases of each kind. (Ayres.[2])

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[1] See *Pedagogical Seminary*, Sept., 1910, June, 1911.

[2] Ayres, Leonard P. The Binet-Simon Measuring Scale for Intelligence: Some Criticisms and Suggestions.

grades and cities. If the distribution curve were based on ages the normal curve would not be obtained.

This distribution curve obtained by measuring all returns from all cities, rating their standing by progress through the grades, almost corresponds to the curve obtained by Goddard for his 1547 children tested by Binet-Simon test. The curve is based on ratio of 1 to 1000 as there are 14,762 children by grades and 1547 for the Binet-Simon tests. Dr. Ayres rightly concludes: "If this were true there would be far less need for securing a measuring scale of intelligence than there undoubtedly is, for in our public school system we should have just such a scale, scientifically correct and already at hand."

Let us bear in mind that Binet's method of standardization was testing public school children of Paris, a selected group chosen by school standards. Progress was based on language development. Remembering the overemphasis that the schools put on language work, talking *versus* doing, are not the results just what might be expected? Do the tests measure native ability or do they not rather measure scholastic attainment?

It is significant that those psychologists who have used the Binet-Simon most, agree that tests for the youngest are too easy and those for the older pupils too difficult. With the disappearance of the old faculty-psychology and the rise of experimental and objective psychology, we note an advent of better things in the increasing interest of medical practitioners, neurologists, and psysiologists in the mental life of the child. They would all put more emphasis on what a child *does* than on what he *says*. A measuring scale of intelligence would prove more significant when *doing* rather than talking is given greater prominence. Not that language development is not closely correlated with mental development, but any series of tests founded so largely on this one point must tend to give it undue weight. The finer musculature and neural centers involved in speech are but a part of the muscular and neural development of childhood. If the normal order of development is from the larger musculature, neurones and synapses involved, to the finer, would not a graded series of tests call for use of these muscles more than does the Binet-Simon scale?

The Binet-Simon tests fail the clinician in three kinds of cases: in the lower range, in the upper range, and in certain neuropathic cases.

1. In the lower range, the child, often backward in speech development, is still intelligent in every other way, making his wants known by gestures, smiles, etc. If tested by the Binet-

Simon scale, a great wrong would be done such a retarded child. Such a child might be classed as an idiot or low grade imbecile, but there are other marks than speech which help in his diagnosis. Low grade children are brought at an early age to the clinics. They are a menace to other children at home, absorb entirely too much of the mother's time and there is a great need for standardized tests to diagnose these cases properly and separate them from the merely retarded. They should be passed over to institutions for proper care and training as early as possible. They can be made happy among their peers, cleanly in habits and in a small way helpful as institution workers. Otherwise they will be a source of misery to their families and themselves and an unnecessary cost to the community.

2. Furthermore in the upper limit of the scale, little satisfaction is gained by use of the Binet-Simon tests, that is for those girls and boys of thirteen through fifteen who read and write, but have been laggards in school; never interested in the sedentary work of the school, longing to do things, and often landing in the truant school. Such a child would often be diagnosed as a moron, if the grade teacher or the strict devotee of the Binet-Simon scale were the diagnostician. The teacher complains of lack of attention, restlessness, disorder, etc., etc. Give such a boy something to do, involving initiative, continuous attention, memory, judgment, and see his response. Give the same problem to the congenitally feebleminded and note the difference. In the latter case there is no initiative, no continuous attention, poor judgment. In order to carry out his work all must be planned for the feebleminded step by step, almost incessant guidance and care is needed, but the boy who has failed in arithmetic, grammar, etc., takes a new lease of mental life if given something to do, something involving the exercise of the larger musculature; something calling for initiative, persistent attention, reason, judgment. Tests of *doing* rather than of talking will help to separate these two classes and test native ability rather than scholastic attainment.

3. The children who have been pressed (neuropathic cases) and in whom the nervous affection is marked by facial tics, twitches, stuttering, stammering, lisping. They are often ahead of grade, but lack any wholesome interest in school. They are brain-fagged at twelve years of age. They have happened to have that type of mind which enables them to grasp abstract reasoning early in life. They shine in the arithmetic and grammar classes. These are subjects which make a premature demand on the association centers. If as Kraes and others assert the entire middle cortical layer is

lacking in association fibres in childhood, but after the new growth of the later teens they increase rapidly and continue to grow in complexity up to fifty years of age, should our course of study put such emphasis on subjects like arithmetic and grammar before the lower teens, subjects which call for the exercise of these centers? Should healthy boys and girls who fail here but succeed in tasks of doing, gathering and retaining facts to broaden their experience, be diagnosed as retarded? These neuropathic cases may show affections due to premature exercise of the association center. Would not tests of doing help us separate these cases from the retarded and feebleminded?

Furthermore for clinical use, tests of doing help one to get a line on choreic tendencies, and note a lack of coordination, give signs of dementia praecox, or other cerebral affections, and assist in the separation of dementia from amentia. What the clinician particularly needs are first, tests of doing rather than of talking; and secondly, tests involving the larger as well as the finer musculature.

To Binet and Simon is due credit for arranging a scale according to age—a scale intelligible to all, but founded as it is on speech development, tests of doing are needed, to correlate and perhaps take the place of some tests in the scale.

It requires a trained and experienced psychologist to give the Binet-Simon tests, to record results and personal and family histories and in conjunction with these try out other standardized tests, preferably those of doing. It is also necessary to study the normal child, his interests and activities at certain ages, in order to formulate other tests leading to a more just estimate of the child's native ability at certain ages.

REVIEWS AND CRITICISM

Child Training as an Exact Science. By George W. Jacoby, M.D. New York and London: Funk and Wagnalls Co., 1914. Pp. xiv+384. Illus.

To physicians Dr. Jacoby's book will doubtless give the satisfaction which it is but human to feel when told, "Ye are the people, and wisdom shall die with you." To teachers it will prove disappointing because of the author's failure to grasp pedagogical problems. It may well arouse, by the way, a justifiable resentment at the tone assumed in speaking of the teaching profession. Why, indeed, should Dr. Jacoby use continually the term *pedagog*, while he would not dream of applying to a member of his own profession the equally slighting term *medicus?* And finally to men of science the title of the book will convey an absurdity. Mathematics, mechanics, perhaps physics and astronomy,—these are the exact sciences. Anything more inexact than child training, or training of any sort whatever, not even a scientist could imagine.

Dr. Jacoby opens his preface by declaring, "A treatise on child training as an exact science, based upon principles of modern psychology, has seemed to me to be an urgent necessity." That modern psychology is the basis for efficient training of teachers, is generally admitted. That it is not the real foundation underlying Dr. Jacoby's treatise, is only too evident. He refers to his book now as "a work on education based on medicine and hygiene," now as "one dealing with those pedagogic reforms which appear to be necessary from the viewpoint of medicine and hygiene," and again as "a presentation of that medico-hygienic scientific material which the pedagog cannot forego using in the rational exercise of his profession." This sort of presentation, if we are not mistaken, has already been amply made. What we would like to see handled by Dr. Jacoby is a treatment of those reforms within medical schools which would lead graduated physicians to an understanding of the child's mental growth and development. A comprehension of the methods of personal hygiene, we venture to say, is becoming more wide-spread among teachers, than is a comprehension of psychology among medical practitioners. Far too often we still hear a physician say of a child with some mental defect which demands prompt educational treatment, "Do not worry, he will outgrow it," and far too often the parents, in obedience to his advice, allow the time to slip by, until the bad habit is firmly rooted, the deficiency ingrained.

"I have considered it necessary," Dr. Jacoby remarks, "to prelude the actual subject matter of my book by an historical survey." This occupies sixteen pages, of which four pages are devoted to Seguin and six lines to Dr. Maria Montessori, although her portrait shares with Seguin's the honor of illustrating this chapter and later on in the book fourteen pages are given to a fragmentary discussion of the Montessori method. The only psychologist mentioned is Wilhelm Wundt, who is dismissed in five lines. Most of the great names in the history of training defective children are omitted altogether.

This brief "history" forms part first. Part second deals with the pyschology of childhood, part third with the psychic abnormalities of childhood, part fourth with prophylactic training, and part fifth, therapeutic training. The work is rounded out by a poorly made bibliography.

It is an unfortunate commonplace that physicians writing upon subjects not strictly medical, find it impossible to refrain from preaching. Dr. Jacoby is no exception, and much of his book is taken up by reflections which the reader might be permitted to make for himself, if he so desired. A great deal of valuable material has been gathered by Dr. Jacoby, but it would require the utmost discretion and skill to winnow it from the misleading statements and unsound inferences with which it is mingled. Nearly if not quite all of this scientific material can be found in other works which are trustworthy and easily accessible, and for this reason, if for no other, it would be unwise for psychologists, parents, and above all for teachers, to spend time upon the book.

A. T.

Recherches sur les Sociétés d'Enfants. By J. Varendonck. Brussels and Leipzig: Misch and Thron, 1914. Pp. iv+95. (Notes et Mémoires de l'Institut de Sociologie Solvay, No. 12.)

M. Varendonck, a professor in the intermediate school at Gand, Belgium, collected the material for his monograph chiefly by means of a questionnaire, of which one thousand copies were printed, half of them in French and half in Dutch, and distributed in 1910 to pupils of elementary, intermediate, and normal schools in Belgium, Holland, and northern France, as well as published in several psychological journals. Three hundred and eight replies were received by M. Varendonck from these young people; 174 had to be discarded as vague and therefore useless, and 134 were used as the basis for his study. The boys, he found, gave more definite information than did the girls. In preparing his material he did not rely exclusively upon the questionnaires. For a long time he had been collecting observations upon bands of children, and this body of fact served him as a touchstone to confirm the veracity of the returns.

He divides his monograph into four chapters, preceded by a copy of the questionnaire, which is long and most searching, and an account of its distribution and results. The first chapter is a general description of the groupings to which the gregarious instinct of children gives rise, their extent and internal organization. The second chapter considers the personality and authority of the leaders. In the third chapter the author discusses the psychology of the members, the collective consciousness of the group, and the attitude assumed toward outsiders. Chapter four presents conclusions. It is followed by an appendix of typical documents describing the various organizations formed by children,—a band of warriors, of Indians, of nomads; a girls' club, and a clan without other purpose than to be dominated for a time by the autocratic personality of the leader.

Discussing the work of scholars who have studied children's societies, M. Varendonck considers their classifications unsatisfactory. "It is very difficult," he remarks, "to establish any distinction whatever which shall separate clearly one band from another, whether from the point of view of the age of its members, or with respect to their habitual occupations, except in abnormal cases like the associations of young thieves. For every society of children includes members of different ages, and on the other hand a group of boys devoted to playing hide-and-seek, for example, may suddenly organize for an adventurous walk through the woods." He prefers a classification based upon complexity of organization. "It is natural," he says, "that societies outside of school are in general more complexly organized than the groups formed in school," and among the former we may distinguish those casually constituted from those having a more permanent existence. Pushing the analysis still further, M. Varendonck adds, "We may observe that among the permanent associations, in those which have chosen a specialty (to edit a paper, give theatrical performances, etc.), the division of labor is established in a perfectly adequate manner." In the true "gang," which he defines as an organization resulting from pronounced selection and which he believes has no real parallelism with primitive life, the individual is completely absorbed by the group,—there is a formal interdependence of the individual members.

Small clubs are more common among girls than among boys, because of stricter oversight of girls by their parents. New members are admitted readily to the large associations, but only with difficulty to the small groups, particularly those made up of a few "inseparables". In these tiny communities the individual is sacrificed to the group, and there is complete solidarity. Large associations, which welcome and even seek new members, generally meet in public, while small and exclusive clubs avoid other children, hold their meetings in secret, and are likely to have a secret code or alphabet.

M. Varendonck's observations enable him to refute the assertion of G. Tarde that "the child knows no impersonal suggestions, that is to say the pressure exerted by a large body, crowd or public. He experiences only personal acts, he yields to examples which are distinct, not confused. And there is nothing in him which is not the reflection of some one else, always an unconscious reflection of someone whom he has always known." On the contrary, M. Varendonck asks, "Who does not remember the crowd, composed sometimes of the pupils of the whole establishment, which was formed for the purpose of annoying a monitor in the study hall by giggling, or by knocking with the feet on the rungs of the benches? Who has not observed in the street a crowd of children chasing a drunkard and teasing him?" He comments, "One may ask whether crowds of children are not capable of committing praiseworthy acts," and decides, "The response cannot be negative." He relates a very pretty incident at which he was present. "Through the street with his heavy pushcart passed a lively old ragman, who entertained all the poorer quarters with his quaintness and good humor. Instead of uttering merely his professional cry, he amused himself by shouting at the top of his lungs all sorts of droll remarks, which he followed by a resounding and often repeated noise produced with his lips. He was known, moreover, for his kindness to the youngsters. Two ragged urchins approached, and without saying a word, began to help him shove his pushcart. The old man so encouraged these assistants fallen from heaven, that in the twinkling of an eye all the youngsters of the quarter, from no one knows where, girls and boys, lent a hand, some pushing, some pulling on the ropes. Their cries of joy turned the whole neighborhood upside down, and the delighted crowd of children accompanied the ragman all the way home. We do not know," admits M. Varendonck, "very many examples of crowds of children with sentiments as generous. They are less frequent than the other kind. But this observation proves that a crowd of young persons is not necessarily misbehaved as some people are tempted to believe." He quotes Lebon, who in his "Psychology of the Crowd," sums up the principal characters of crowds composed of adults—'impulsiveness, irritability, incapacity for reasoning, absence of judgment and critical spirit, exaggeration of sentiment," etc., while "disappearance of the conscious personality, predominance of the unconscious personality, orientation through suggestion and contagion of sentiments and ideas in the same way, tendency to transform suggested ideas immediately into acts,—these are the principal characters of individuals as a crowd." M. Varendonck concludes, "We can affirm that in these respects, crowds of children differ very little from those of adults."

The monograph is not only a scientific contribution to child psychology and sociology,—it is a most enjoyable bit of literature for those who read French. It would be well worth translating completely into English.

A. T.

NEWS AND COMMENT

An Educational Clinic at Plainfield, N. J.

Dr. Maximilian P. E. Grossmann announces an educational clinic at Plainfield, New Jersey. He says, "This Clinic, the pioneer of its kind, fills a long-felt want."

Dr. Grossmann's announcement admirably expresses the purpose of a psychological or educational clinic, but unless Dr. Grossmann is more familiar with clinical methods in psychology and education, than he is with the history of clinics in this country, I fear his newly established Educational Clinic will scarcely measure up to the promise of his prospectus.

If Dr. Grossmann will consult the initial number of THE PSYCHOLOGICAL CLINIC published March 15, 1907, in which I announced that I would begin the publication of results from the Psychological Clinic of the University, which had then been in existence for ten years, he will find on page nine the following statement of the scope of a psychological clinic:

"I would not have it thought that the method of clinical psychology is limited necessarily to mentally and morally retarded children. These children are not, properly speaking, abnormal, nor is the condition of many of them to be designated as in any way pathological. They deviate from the average of children only in being at a lower stage of individual development. Clinical psychology, therefore, does not exclude from consideration other types of children that deviate from the average—for example, the precocious child and the genius. Indeed, the clinical method is applicable even to the so-called normal child. For the methods of clinical psychology are necessarily invoked wherever the status of an individual mind is determined by observation and experiment, and pedagogical treatment applied to effect a change, *i. e.* the development of such individual mind."

Since 1907 psychological and educational clinics have been established in large number by universities, school systems, and individuals. If Dr. Grossmann will consult Wallin's "Mental Health of the School Child," he will find this history given in some detail, and he will discover that some forty-odd clinics were brought into existence before the birth of Dr. Grossmann's "pioneer clinic" at Plainfield, New Jersey, was announced to the public.

L. W.

Annual Meeting of the N. Y. State Medical Society in April.

The local committee of arrangements of the Medical Society of the State of New York, extends a cordial invitation to all physicians, no matter where they reside, to attend the hundred and ninth annual meeting of the society in Buffalo, April 27–29. Through the cooperation of the military authorities, the sessions will be held in the 65th regiment armory, which is large enough to accommodate all the exhibits and section meetings. Lectures to the laity will be given by prominent visiting physicians in the Masten Park High School, across the street. The choice of the armory is fortunate as indicating the organization of the state society as an arm of the state government. On the last night of the meeting a regimental parade and review by General Gorgas will be held. Information may be obtained from Dr. Edward A. Sharp, Chairman of the Committee on Registration, 481 Franklin Street, Buffalo, N. Y.

Courses in Scoutcraft at Columbia University.

Columbia University has instituted two courses in Scoutcraft which will give an understanding of the biologic, hygienic, psychologic, and sociologic significance and value of adolescent organizations, particularly the Boy Scouts of America, and will provide the practical training required by Scoutmasters and Scout Executives in that organization.

The courses have been outlined after conferences attended by Dr. James E. Russell, Dean of Teachers' College, Columbia; Prof. Jeremiah W. Jenks, of New York University, chairman of the committee on organization of the Boy Scouts of America, and James E. West, Chief Scout Executive. They will be offered first during the summer session of the university, and will be under the direction of Dr. J. C. Elsom, of the University of Wisconsin.

Dr. Elsom has been a teacher of physical education and an advocate of open air for nearly twenty-five years. Since 1894 he has been connected with the department of physical education of the University of Wisconsin, and has lectured in all parts of the country. When the Boy Scout movement was begun, Dr. Elmson became identified with it, recognizing it as an easy, pleasant, and effective way of getting boys to do those things which are of greatest benefit to them physically, mentally and morally. He has served the organization in different phases.

In the practical training in Scoutcraft which will be given in the courses at Columbia emphasis will be placed on practical work with boys in the demonstration school, playground, gymnasium and model camps. All of the activities of Scouts will be employed in the practice course, the National Organization of the Boy Scouts of America co-operating.

Boy Scouts of New York will maintain a model Scout camp on the edge of Van Cortlandt Park in the northern part of the city. Specialists in boys' work will take part in the courses with lectures and demonstrations.

By placing Scoutcraft in its curriculum, Columbia University gives further evidence that the program of the Boy Scouts of America is no longer regarded as an experiment, but is an educational agency of proved value. Dr. Charles W. Eliot of Harvard, after making an exhaustive study of the movement, delivered an address at Tremont Temple in Boston recently in which he gave high praise to this method of improving boys and said that it revealed much that the public schools would do well to benefit by.

Among the other educational institutions which regularly provide instruction for workers, in the Boy Scouts of America are the Universities of Chicago, Virginia, Texas, Wisconsin, California, Minnesota, Pittsburgh, and Iowa; Cornell University, Boston University, Carnegie Institute, McCormick Theological Seminary, and Massachusetts Agricultural College.

The Psychological Clinic

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OPEN WINDOW CLASSES.

By D. C. Bliss.

Superintendent of Schools, Montclair, N. J.

Unfortunately for the development of educational science there is a strong tendency in the profession to govern practice by opinion, with little real scrutiny of facts. This attitude of mind is responsible for the establishment of many open window classes in various school systems in the country. To many who advocate the classes it seems a self-evident proposition that pupils working under such conditions will show increased physical gain and a more efficient mentality than those who sit in the customary well-warmed room. These enthusiasts argue somewhat as follows:

Fresh air is absolutely essential to good health; the evidence of its efficacy as a healing agent in tuberculosis is clearly established; sickly, anemic children in open air rooms have gained in health and at the same time have made progress in their studies equal to that of pupils in the regulation class room; the inference is that normally healthy children if placed under the same conditions will show a still greater improvement, due to their better physical status. In accordance with this natural assumption many classes have been established and extravagant claims have been made for remarkable results both physical and mental.

If the classes accomplish the good results alleged, it seems perfectly logical to assume that such a conclusion is capable of demonstration. With the hope of establishing some of the facts relative to such classes the following records were collected.

It should be noted that the writer began the tests with the expectation that the results would fully corroborate the commonly accepted opinion. The natural result of this preconceived notion would be a tendency to interpret the collected statistics to the advantage of the open window class rather than against it. However, an attempt was made to reach a conclusion based upon the facts as they appeared, rather than upon the initial conviction. Whatever bias existed was in favor of, rather than against, current opinion.

It was clear at the outset that any valid conclusions from a study of such classes must be based upon a comparison with other groups and not upon a study of the open window children alone. The school conditions in Montclair were very favorable to such a study. It was possible to select groups for the open window and control classes from approximately the same type of children; an efficient medical department provided expert opinion on the physical condition of the children; and all mental tests were given by one person.

A second, a third, and a fifth grade class were selected for the test, no two of these classes being in the same building. Each was checked by a control group of equal number in the same school building. The children in the open window classes were placed there at the request of their parents, and in all probability whatever advantage accrued from this method of selection was rather in favor of the open window class, for only those parents who were believers in fresh air and so were inclined to supplement the school arrangement with favorable home precautions, were likely to make this choice. So far as could be determined superficially the classes were physically equal. The open window classes had one possible advantage over the control groups in a lunch provided at the expense of the parents; the second and third grades being given some warm food, such as a cup of hot soup or cocoa, about the middle of the forenoon session, while the fifth grade ate a light cold lunch which they brought from home. The rooms were kept at a temperature of about 50° F. This was secured by raising all windows at the bottom and lowering them at the top so that the opening was about half the size of the window. These openings were covered with cheesecloth screens to protect the children from severe draughts, and the pupils were provided by the home with extra clothing and a shawl or rug in which to wrap the lower limbs.

A definite attempt was made to check all pupils in both open window and control classes on three separate lines:

1. Degree of nutrition, measured in terms of weight gained and weight lost.

2. General health, as indicated by the number of children absent because of illness and the total number of days lost thereby.

3. Mental condition, indicated by the comparative amount of fatigue in the two classes. This was determined by a comparison of tests, one given half an hour after the opening of school in the morning, and a similar one given to the same class late in the session. The weight tests cover the period from November to March. The rest of the year open windows are the rule in all class rooms, a fact which makes any comparison of weights useless. The great loss of time

involved in any other method made it necessary to weigh the children with their clothing on, but previous experiments in weighing open air children both with and without clothing had shown that the increase in weight was fairly constant under either condition. The medical department of the school felt that while under the circumstances the weight figures were not scientifically exact, they were correct as far as relative values were concerned.

The following charts show the total number of pounds gained and the total number of pounds lost by the classes for each weight period.

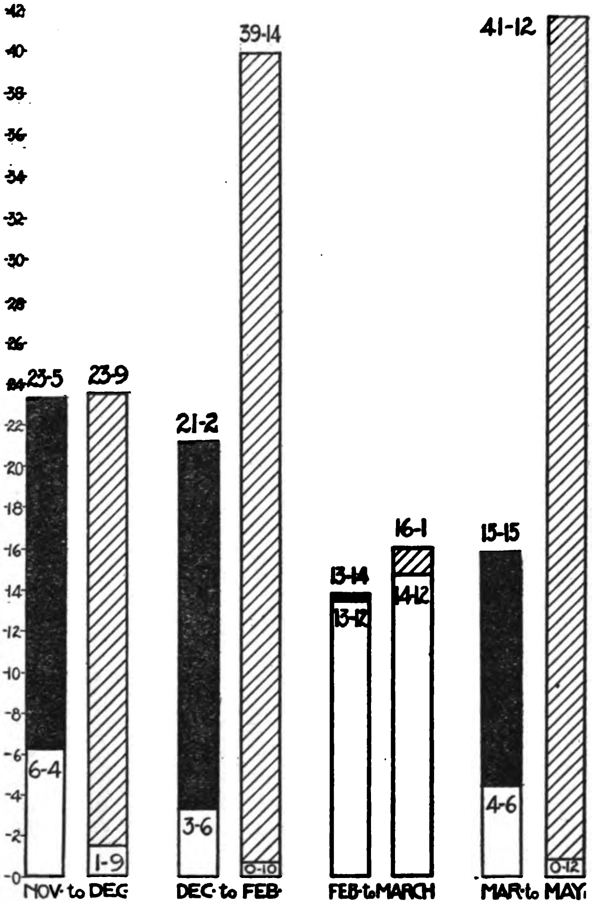

CHART I.

The first column in each time group represents the open window class, the second the control class. The entire height of the columns shows weight gain while the white portion records weight loss. Thus, from November to December the pupils of the open window class gained 23 lbs. 5 oz. and lost 6 lbs. 4 oz., making a net gain of 17 lbs. 1 oz., which is shown by the blackening of the upper portion of the columns. During the same period the pupils of the control class gained 23 lbs. 9 oz. and lost 1 lb. 9 oz., leaving a net gain of 22 lbs. In every time group the control class shows a greater net gain than the open window class.

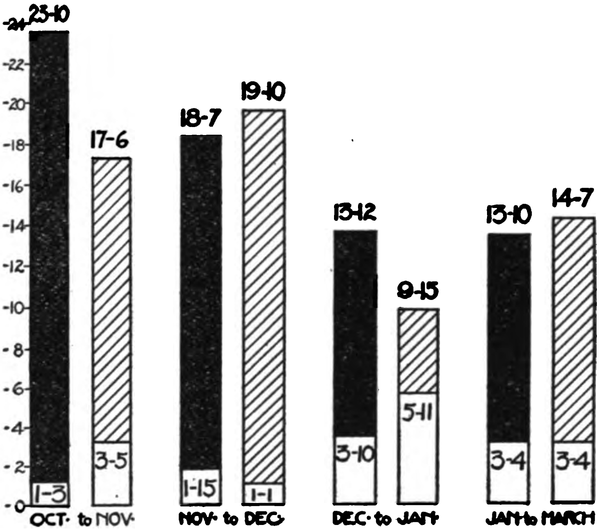

CHART II.

In the chart representing the comparative gain and loss in weight of the open window and control classes for Grade III there is less uniformity than in that for Grade V. From October to November the open window class gained 23 lbs. 10 oz. and lost only 1 lb. 3 oz. Thus the net gain is 22 lbs. 7 oz. as against a net gain of 14 lbs. 1 oz. for the control class. Again, in the period from December to January the open window class shows a greater net gain than the control class, but from November to December and from January to March the advantage is on the side of the latter.

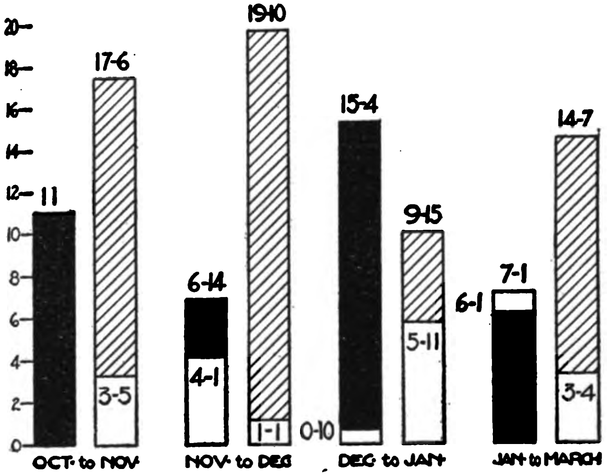

CHART III.

The chart for Grade II shows an unusual condition in the open window class record from October to November in that there is no weight loss but a total gain of 11 lbs. Nevertheless, the control class, in spite of a weight loss of 3 lbs. 5 oz. for the same period, surpasses the open window class in its net gain of 14 lbs. 1 oz. From November to December the difference in the net gain of the two is even more strongly in favor of the control class. From December to January, however, the advantage shifts, though it returns again to the control class in the period from January to March. In this last period the entire column for the open window class represents weight loss, so that instead of a net gain the record shows an actual net loss of 1 lb. as against a net gain for the control class of 11 lbs. 3 oz.

An examination of the charts shows a somewhat inconclusive result, though taken as a whole the classes held under ordinary conditions make more consistent gains and have fewer losses than the open window groups. Had the losses in weight of individuals during the year been confined to either one of the two classes, only one conclusion would have been possible. As a matter of fact, the number of different children losing weight is distributed about equally between the two groups.

	Sept.-Nov.	Nov-Dec.	Dec.-Feb.	Feb.-Mar.	Totals.
5 O. W.	0	4	5	9	18
5 Control	0	2	1	9	12
3 O. W.	3	3	5	6	17
3 Control	7	2	6	5	20
2 O. W.	0	2	1	4	7
2 Control	4	2	4	3	13
Total O. W.	..	..	..	..	42
Total Control	..	..	..	..	45

The above table indicates the number of children in each class actually losing weight during each period. The *amount* of loss is not taken into consideration. There are 42 instances of weight lost in the three open window classes and 45 instances in the control groups.

The element of weight gained is the one most commonly urged in support of the open window plan. It does not appear from this study that children will necessarily gain if required to sit in a room of that type. Even should a radical gain in weight be found, such gain is by no means conclusive evidence that the child is better off physically. The degree to which children are susceptible to the common ailments of cold and sore throat, or to contagious disease, would seem to be a reasonable criterion of physical condition and far more accurate than gain or loss in weight. Records showing absence from school for these causes were carefully kept and the tabulated records show no such variability as appeared in the weights.

HEALTH RECORD, 1913–1914.

	V. Open Window.		V. Control Class.	
	No. of Children.	Days Absent.	No. of Children.	Days Absent.
Colds	17	76	7	48
Sore throat	0	0	2	6
Contagious diseases	5	80	2	30

HEALTH RECORD, 1913–1914.

	III. Open Window.		III. Control Class.	
	No. of Children.	Days Absent.	No. of Children.	Days Absent.
Colds	13	52	13	37
Sore throat	2	2	1	2
Contagious diseases	8	123	7	62

HEALTH RECORD, 1913–1914.

	II. Open Window.		II. Control Class.	
	No. of Children.	Days Absent.	No. of Children.	Days Absent.
Colds	12	38	13	37
Sore throat	2	4	1	2
Contagious diseases	12	115	7	62

At the beginning of the previous year, 1912–1913, a second grade open window class had been organized and the health records were preserved for this class as well as for a control group. These pupils were given no extra food and the temperature was allowed to go as low as it would. In extreme weather the room thermometer often registered below freezing. At the end of the year the unfavorable physical showing made by the class was thought to be due to lack of extra food and to the low temperature allowed. Consequently the next year the conditions were maintained as indicated for the three classes. In spite of these changed conditions there is a striking similarity in the health record of the 1912–1913 class and the three classes for 1913–1914.

HEALTH RECORD, 1912–1913.

	II. Open Window		II. Control Class.	
	No. of Children.	Days Absent.	No. of Children.	Days Absent.
Colds	11	32	9	21
Sore throat	7	18	0	0
Contagious diseases	0	0	1	20

When we remember that these statistics are for four separate open window classes in three different school buildings and for two successive years, it is hardly conceivable that the close similarity in the records is merely a coincidence. It should not be forgotten that these classes represent groups maintained at a very low temperature and groups at a higher temperature; that we have children supplied with mid-forenoon lunches and children with no lunches. In fact we have included most of the variations likely to occur, and variation in conditions seems to make no difference. The resemblance in the records is noteworthy.

It was felt by those responsible for the classes that the experiment would not be complete unless some attempt were made to determine the effect of the difference in atmosphere upon the mentality of the pupils. The second grade, with its control class, was selected for the tests. Two of these were used, marking out "A's," and simple computation. The "A" test as given in Whipple's Manual was employed, the pupils being directed to mark out as many "A's" as they could. The time was carefully kept by the examiner and all were required to stop promptly at the end of 60 seconds. The other test was based upon simple mental computation of the following type: Add 5–9–5–4: 8–6–6–7: 22, take away 3; 13, take away 5. These problems were dictated by the examiner and the percentage of accurate answers written constituted the score. The tests were given regularly, one a half hour after the opening of the school in the morning and a similar one either just before the closing of the morning session or just before the closing of the afternoon session. The assumption was that both classes, with the development of fatigue, would make a poorer record on the second test, although the drop would be less decided in the case of the open window group. These tests were carried on for days and the results were a complete surprise. In the "A" test both classes made the poorer showing in the early morning, and both improved decidedly in the second period. This tendency was apparent not only at first but continued during the whole period of the experiment. The element of fatigue seemed to enter into the arithmetic test, since both classes, as a rule, showed the expected drop in power in the afternoon; but the anticipated difference between the two classes in the amount of fatigue was conspicuously lacking. The fact that both the control and the open window classes showed the same contradictory results with reference to the "A" test and the arithmetic test suggests a similar mental condition in both classes. As the following charts show, the results, to say the least, are inconclusive.

In marking out "A's" the two groups start at approximately the same point and end together. The upward tendency of the line is apparently the effect of practice but is equally marked with both classes. The control group takes an unaccountable slump in one morning record but immediately recovers the lost ground. The two groups differ greatly in their initial ability to handle fundamental operations, but even here, though on different levels, the lines are practically parallel.

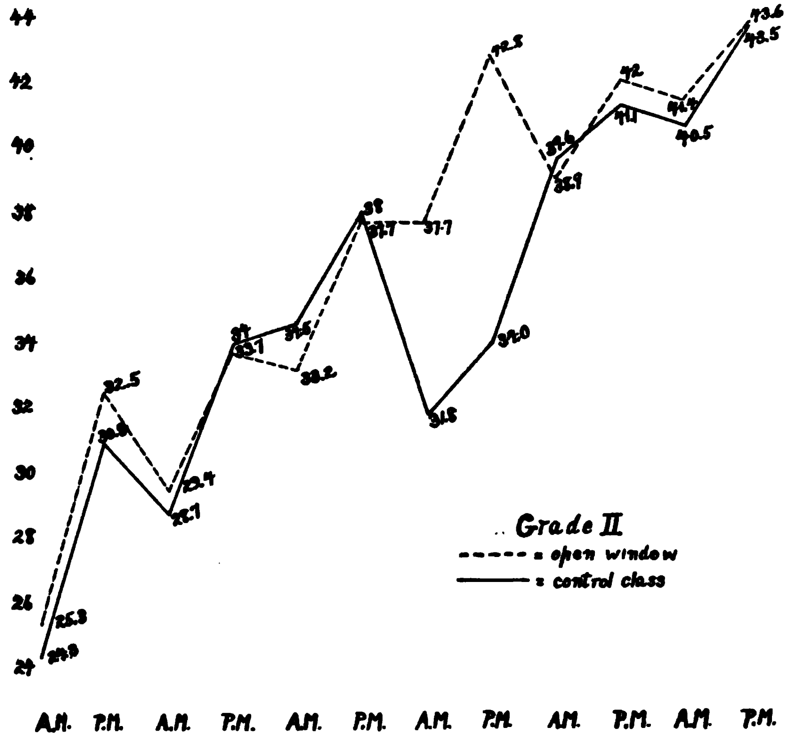

CHART IV.

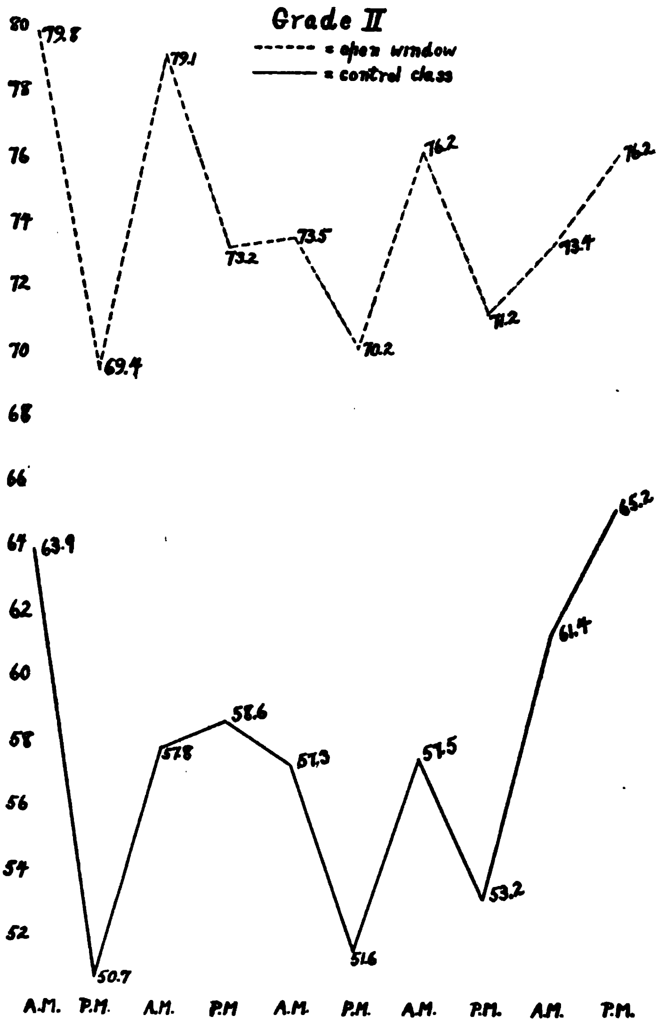

CHART V.

A surprising feature of the whole experiment with the open window classes is the attitude of the parents. Almost without exception they are convinced that their own children greatly benefited by the plan. This conviction is so positive that it is not affected in the least by the statistics of the classes. These parents assert that the children are less nervous, and that they eat and sleep better than ever before.

A possible explanation of the discrepancy between the results in Montclair and elsewhere is that the conditions are not identical. So far as Montclair is concerned the ordinary school ventilation is as good as can be secured. Large fans force quantities of warm, fresh air into all class rooms. Consequently the experiment resolves itself into showing the difference between warm, well-ventilated rooms, and cold, well-ventilated rooms. It is entirely possible that those schools in other communities, which have obtained excellent results from the open window plan, measure the difference between cold pure air and warm foul air. If this assumption is correct then the wide variation in the recorded results is not at all surprising.

One conclusion, however, is unavoidable, and that is, the absolute necessity for basing our school policy upon well ascertained facts rather than upon mere opinion.

A GROUP OF CHILDREN AS CLINICAL PROBLEMS.

By Gertha Williams,

Graduate Student, University of Pennsylvania.

Most of the cases received at the Psychological Clinic of the University of Pennsylvania come as individuals, not in groups, but nine of the cases examined during the summer of 1914 came as one group with certain characteristics in common. They were all Jewish and were sent to the Clinic by a Jewish charitable institution in Philadelphia. With the exception of one child they lived at the Home during the day, returning to their own homes at night.

The nine children are:

Albert	7 years	backward
Sam	9 years	backward
Bella	8 years	delinquent
Jacob	7 years	backward
David	12 years	delinquent
Morris	11 years	backward
Bessie	10 years	delinquent
Celia	7 years	backward
Rose	8 years	backward

Albert is seven years old and an only child. He was brought to the Clinic because of pedagogical retardation. His father is dead and his mother is employed in a factory. She is in poor health and is soon to undergo an operation. They live on the fourth floor of a tenement, occupying but one room, which is fairly clean. Albert's health is good and there are no marked physical defects. The mental examination showed him to be of normal mentality although his mental processes are sluggish. He has a slight speech defect. He may require special instruction to bring him up to grade. It was recommended that he begin again in the first grade in the fall and if, in the teacher's judgment, he does not make satisfactory progress that he be transferred to a special class at the end of one month.

Jacob is seven years old. He was brought to the Clinic because of backwardness in school. His mother died of tuberculosis; otherwise the family history is good. The father is a laborer and is reported to possess only low-grade intelligence. But as he is able to support his family and himself, he is probably not feebleminded. Jacob has one sister who is backward.

While pedagogically retarded, Jacob seems to be of normal mentality, but he is in a poor physical condition. He is anemic, restless, and easily fatigued. His poor physical condition is the probable explanation of his retardation, and the first consideration should be given to proper physical care. Special instruction, preferably in a special class, may be necessary to held him overcome the retardation his physical condition has caused and bring him up to his grade.

Sam is nine years old. He was brought to the Clinic because of backwardness. He has been in school three years and is now in the upper second grade doing poor work. He does not like school but is fond of "cleaning up," and does work of that nature well. He does not obey readily, but this is rather because he forgets or fails to understand. He is quarrelsome and does not get along well with other children. His health is good but he is always in a very unhygienic condition. His mother is employed during the day, and as she is of low-grade intelligence, is unable to give him proper care. The father is dead.

Sam reads with good pronunciation and articulation and with fair expression. His arithmetic is only fair with concrete material. In general conversation his answers are unintelligent. According to the Binet scale his mental age is just seven; his responses are very slow. He could not reproduce the lozenge correctly but realized that his reproduction was poor. His auditory memory is only fair; visual memory poor. Questions associated with his life he answered well, but those requiring thought were more difficult for him. He described a picture of common objects accurately and was able to execute three commissions, but he could not compare a butterfly and a fly, or wood and glass.

Sam is a more discouraging case than the other two boys. His health is good but the home conditions are poor. His mentality is doubtful, but one does not like to call him feebleminded without further observation. He is a good example of a case in which the special class teacher can render valuable assistance to the examiner in making a final diagnosis. He should be placed under a teacher capable of making intelligent observations of his reactions, and returned to the Clinic for re-examination. Then a diagnosis can be made, based partly upon the teacher's report of his progress and partly upon the two examinations.

Bessie is ten years old. She was brought to the Clinic because she is reported to be nervous, disobedient, and morally irresponsible. Her behavior with boys is undesirable, indicating that she might become immoral when older. She writes silly notes to the boys and is, as the social worker who brought her expressed it, "fresh" with them. While not vicious she is disobedient, noisy and quarrelsome.

She is unusually well developed physically and is in good health. Her birth was natural and she was a healthy baby and seemed like other children. She has had no serious illnesses except diphtheria. Her tonsils have been removed.

In school she is in the upper fourth grade. She entered school at five and has had two long absences. Her conduct in school is only fair. She reads with good expression, articulation, and pronunciation. In memory type she is visual. Her spelling is good in that words recognized with difficulty or misread are spelled with some degree of accuracy. Her written spelling is superior to the oral. In arithmetic she is inaccurate but reasons fairly well. There is nothing in her mental condition to account for her delinquent tendencies, as her mentality is certainly normal.

The home is crowded but fairly clean. The father and mother are of ordinary mentality. At the time the home was investigated the father was just recovering from the effects of an operation and the mother was ill and expecting to have an operation in the near future. It seems to me that right here we have the probable explanation of her delinquent tendencies. With the father and mother both ill, there is no one to take proper care of a girl of her age. She needs judicious discipline and a favorable environment. She is to be returned to her grade in the fall, and if delinquent tendencies continue, is to be removed from her home for a time.

These few cases are fairly representative of the group and will serve to illustrate the following points:

In all examinations of children at the Clinic the practical side of the question is never lost sight of. There is always an attempt to answer the question, "What is best to be done for this child?" The whole examination revolves about this point. In order to answer this question several other questions must first be answered.

The clinicist asks himself in what way the child deviates from the normal. There are two possibilities. The child may be backward or delinquent, as in the cases cited above. This problem does not detain the examiner long, as the reason for bringing the child to the Clinic usually clears up this point. Then the cause of the delinquency or backwardness of the child must be determined. This is not so easily discovered. The cause may be found in the child's mentality, in his physical condition, or in his environment. In the cases of Albert and Sam, for example, the cause was found in the mentality of the children, in Jacob's case it was his physical condition, and in Bessie's an unfavorable environment.

After the child's condition is diagnosed, definite and specific advice is given to the parent or guardian as to what is to be done for him. This advice is of a practical nature, based upon real conditions, and is not merely an ideal prescription of what would be best for the child under conditions which do not exist. The advice varies with each child. It may be the suggestion of an institution, public or private, a special class or other form of individual instruction. Or the examiner may merely suggest a different method of dealing with the child in the home.

In the giving of advice much tact is necessary. The best of advice must be sugar-coated. Parents are loath to believe their children feebleminded. Also there is much ignorance and prejudice against institutions to be overcome. If the trouble is in the home itself, the situation is a delicate one. It is very difficult to persuade a parent that his method of dealing with his child is wrong or that his home is not the proper place in which to bring up his child.

The work of the social service department is of great importance to the Clinic, for follow-up work is absolutely necessary to secure the best results. The parents need help and encouragement in carrying out the recommendations of the examiner. The formality of entering a child in an institution would discourage most parents if there were not some one to help them. It is often necessary for the social worker to go into the home and help the parents to readjust themselves and their home to the needs of the child. It is also her duty to see that the child is brought to the Clinic for re-examination on the advice of the examiner. This careful follow-up work makes it possible to keep in touch with the cases tested at the Clinic and to learn the effect upon the child of the treatment recommended. Thus there is a check upon one's own work which is of great value when a similar case comes up.

It is not always possible to give a final judgment of the child's mentality at the time of the first examination. The diagnosis is essentially a prognosis and for this reason it is often necessary to keep the child under observation for a time or to try the effect of a given course of treatment or special instruction upon him. Then when the child is brought for re-examination a truer judgment of his mentality can be made, based upon the progress he has been able to make under proper conditions.

It will be seen that the clinicist cannot rely on any set of mental tests alone to give him a complete picture of any given case. No source of information is to be disregarded. The answer may be given by the mental tests or the solution may lie in the environment of the child or in his physical condition. Each child is treated as an individual and no general rule can be framed to apply to all cases. The examiner must be ready to follow any "lead" given him, whether it be found in the mental examination or in some apparently insignificant bit of information brought to light in the preliminary examination. Every action of the child is significant from the time he enters the room until he leaves it.

It is here that the experience of the examiner is important. He must have the tact to get the needed information about the child from a sometimes reluctant parent and the ability properly to interpret the child's behavior during the examination. Dr. Knox of Ellis Island has very aptly named this ability of the clinicist to "size up" a given case from his experience with other similar cases the "human test".

THE FACTOR OF EXPERIENCE IN INTELLIGENCE TESTING.

BY RUDOLPH PINTNER AND DONALD G. PATERSON.
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This paper will endeavor to show that the factor of experience in intelligence testing depends upon the type of test used. In a previous article[1] the writers showed that those defectives over fifteen years of age, as compared with defectives below fifteen years of age of the same mental age, greatly excelled in two tests of the Binet-Simon scale, *i. e.* naming the days of the week and the months of the year. Results from a similar comparison with a different type of test show that when *real* intelligence tests are used children greatly excel adults of the same mental age computed by the present Binet-Simon scale.

A discussion of the results of our previous paper was made in the February (1915) number of THE PSYCHOLOGICAL CLINIC by Dr. J. E. Wallace Wallin,[2] who restated a previous study of his concerning this factor which we call experience. He showed that adults excel in reading tests as compared with children, concluding that here the practice or experience factor was the cause. In the form board test however the children excelled, due according to Wallin's opinion to a more extensive practice with such devices in the school room. In the color-naming test the children also excelled in the *time taken to re-act to the situation.* The children excel in uncontrolled free association as they do in immediate memory also, *i. e.* recalling the content of a reading selection. In all these cases Wallin's contention is that this superiority on the part of the children is due to schoolroom practice. We do not agree with this position but hold rather that the children excel because these tests are more adequate measures of intelligence than are such tests as the week-days, months, and reading tests.

If we accept Stern's[3] definition of general intelligence as general mental adaptability to new problems and conditions of life, then those tests that call for adaptations on the part of the re-agent to relatively new situations will best discriminate between degrees of intelligence. Empirical evidence shows this to be the case. Based upon an analysis of the Binet-Simon tests given to feebleminded children, Chotzen[4] found that among children of the same mental level, some tests show a decided increase in capacity with increase in chronological age, others no alterations, while there was an actual decrease in others. Stern[5] quotes Chotzen thus, "The tests accompanied by strong increase with age relate, then, almost exclusively to matters of information. . . . No increase at all is present with tests that demand ability to judge and to combine or with such as put severe demands upon apprehension—comparison, problem-questions, noting omissions, repeating five digits." It is thus seen that tests in which the experience factor is ruled out to a relatively greater extent correlate most highly with general intelligence.

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[1] Experience and the Binet-Simon tests. THE PSYCHOLOGICAL CLINIC, Vol. VIII, No. 7, December 15, 1914.

[2] J. E. W. WALLIN. The Binet-Simon tests in relation to the factors of experience and maturity. THE PSYCHOLOGICAL CLINIC, Vol. VIII, No. 9, February 15, 1915.

[3] STERN, WILLIAM. Psychological methods of testing intelligence. Tr. by G. M. Whipple. Baltimore: Warwick & York, 1914, p. 3.

TABLE I.—SHOWING RESULTS OF KNOX CUBE TEST.

M.A.	21 or above.		20 or below.		15 or above.		14 or below.		15 to 21.	
	No.	Ave. No. Lines Passed.	No.	Ave. No. Lines Passed.	No.	Ave. No. Lines Passed.	No.	Ave. No. Lines Passed.	No.	Ave. No. Lines Passed.
5	7	1.14	21	2.04	14	1.64	14	2.35	7	1.42
6	11	1.18	37	2.13	31	1.58	17	2.52	20	1.80
7	15	1.80	36	2.80	32	2.03	19	3.31	17	2.23
8	11	2.45	39	3.92	36	3.16	14	4.00	25	3.88
9	24	2.79	39	4.20	51	3.54	12	4.16	27	4.29
10	21	4.27	31	4.54	55	4.38	5	4.80	26	4.50
11	13	3.76	15	5.46	26	4.73	3	4.00	13	5.69
Total . .102 Grand Total. .320			218							

Keeping these points in mind we will proceed to consider the results obtained in testing 320 feebleminded inmates of the Ohio Institution for Feebleminded Youth[6] with the Knox Cube Test[7] revised and standardized by Pintner.[8] The tests were not made with the view of showing such facts as we here present, but for the purpose of comparison with normal children of corresponding ages. Bias in giving the tests to the older and younger feebleminded individuals is thus ruled out. The test as here given consisted of ten different combinations of tapping four Binet cubes with another cube. Each combination is called a "line". Table I shows the average number of lines passed by feebleminded children of different mental ages (determined by the Binet-Simon Scale, Goddard Revision). The cases are classified in five groups based upon chronological age. Under the first heading is given the mental age, under the second, the group above 21 years chronologically; the third, those below 21; the fourth, those above 15; the fifth, below 15 and the last those between 15 and 21 years. Under each group is given the number tested and the average number of lines passed.

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[4] *Ibid.*, p. 89.

[5] *Ibid.*, p. 89.

[6] The writers wish to acknowledge the courtesy of the Superintendent, Dr. E. J. Emerick.

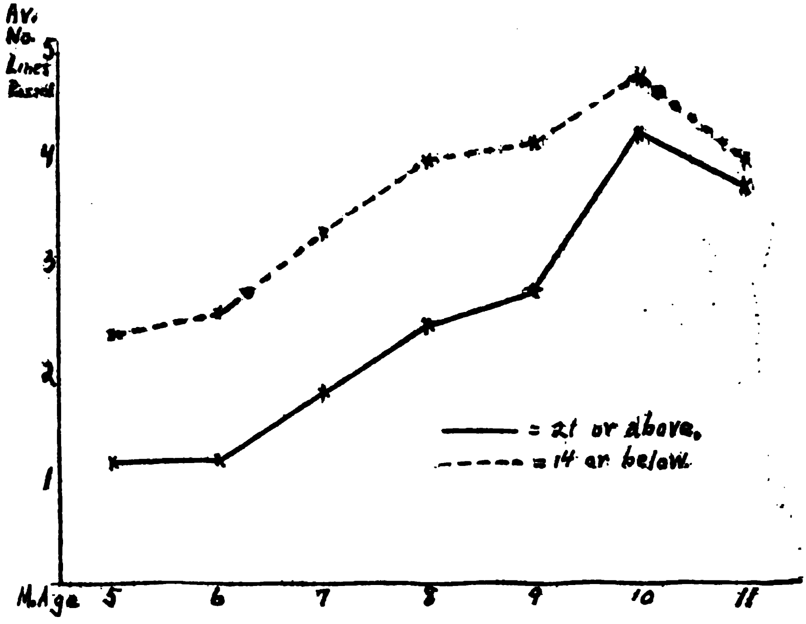
[7] HOWARD A. KNOX. A Scale based on the work at Ellis Island, for estimating mental defect. *J. of the Am. Med. Assoc.*, March 7, 1914, Vol. LXII, pp. 741–747.

[8] The standardisation of this extended Cube Test to be published shortly.

This chronological grouping is quite arbitrary and was decided upon merely to see what changes take place in the relative efficiency of three stages in chronological development, *i. e.* children below 15, between 15 and 21, and over 21. Wallin holds that the difference between those over 21 and below, of the same mental age, is due to physical growth, to maturity. As we conceive it, that question can not enter into such a consideration as we have before us, for this reason, that if their superiority in any test is held to be due to the factor of growth alone, then they should excel in all the tests of that age and would consequently test higher. The comparison would then break down. The factor that causes this discrepancy between the two groups is one of experience, *i. e.* they will excel in those tests which depend upon daily experience. The difference is due to the kind of test and not to any maturity difference or any intellectual superiority.

Although maturity and experience are two factors which are no doubt closely inter-related, yet they are different, and it is well to avoid confusion between them. The distinction is not made clear by Wallin, and it seems to us that he at times regards them as one factor only. We doubt whether maturity, "the processes of physical maturation" as Wallin calls it, enters very much, if at all, into the tests that have been discussed in these articles. We can well imagine that very young children may not be able to do as well on the form board because of their inability to co-ordinate the movements involved in grasping and placing the blocks. This would be due to a maturity difference and would apply to young children only, younger than any that have been considered by Wallin or by us. Experience, on the other hand, refers to the number of times an individual has been confronted with the same situation, and should be kept distinct from maturity. We can not conceive of maturity differences entering into any of the tests under discussion with the individuals tested, but experience differences obviously do, and yet only in some specific tests. We have mentioned the days and months test as cases in point. Wallin suggests the reading test as well, and doubtless rapidity of reading depends to some extent upon experience. The children are superior to the adults on the form board. We agree with Wallin that the form board "represents a novel situation," and we feel that he contradicts himself when he says further on that the children do better because of their greater experience with situations of this kind.

In considering the results in table I it will be seen at once that on the cube test in each group there is a constant increase in efficiency for each mental age. However between the five groups in any mental age (age XI excepted) we find differences of efficiency that are significantly constant. Take age V for example, we find those below 15 doing the best with an average of 2.35; those aged 20 or below come second with an average of 2.04; those aged 15 or above, third with 1.64; those aged 15 to 21, fourth with 1.42, and last those over 21 passing only 1.14 lines. The same tendency is seen for each mental age. The curve shows graphically the average efficiency per mental age for those over 21 (solid line) and for those below 15 (dotted line).



This curve enables us to see at a glance that the children are superior to adults throughout all mental ages. This is in direct contrast to the results found in our paper on the days and months test.

Now, we could take the average number of lines passed for all ages for each group, but this would not be accurate for we have not tested the same number in each group in each mental age. It gives us an average which is not a proper basis for comparison. By inspection of table I we see that the younger the child chronologically, the more lines he passes. This holds for all mental ages up to X. Now, the Binet-Simon scale is more adequate at the upper end even although it may not be accurately standardized in ages XI and XII. We mean by this, that ages X, XI, and XII are composed for the most part of tests that present *new* situations to the re-agent. We never put dissected sentences together, we do not draw designs from memory and so on. But we do make change and count pennies, we often have to find the date and think of the day or month and sometimes buy stamps and count them. These are things an individual, even an inmate of an institution, is doing more or less constantly. So from our point of view and in line with Chotzen's results, we would not expect to find any age increase in efficiency when subjects mentally arrested above a mental age of IX are considered. Thus there would be no great difference between the five groups in mental ages X and XI. That is exactly what we find. Those over 21 make a great jump in efficiency from IX to X, and although the tendency for the younger children to excel is still present, it is not nearly so conspicuous. We can not explain the apparently chance dropping off in age XI of the adult group, but it is to be noted that only 13 eleven year olds were tested as compared with 24 and 21 in ages IX and X.

Our interpretation of these results is that up to age X the Binet scale contains some tests which depend very largely upon daily experience and hence the older the child tested the more liberal is the estimation of his mentality as computed by the present Binet scale. That is, given two individuals, one twelve and the other twenty-one, both having a mental age of VIII, we believe that the one twenty-one years old is not really VIII but has a mentality below VIII. But if both cases had been measured by a scale that has eliminated the experience factor as far as possible, their difference in mentality would have been shown. Now any two individuals, no matter what their chronological age, testing the same by such a scale, would show about the same average performance in any other test involving practically no experience.

We will next take up the consideration of a different test, *i. e.* Knox's Feature Profile. This test is placed before the child with the following verbal direction, "Put this together." It pre-supposes on the part of the subject an ability to read a diagram, to perceive the seven pieces of the profile, as a head, to synthesize in other words the various parts into a whole. The results are given in table II.

TABLE II.—SHOWING RESULTS OF FEATURE PROFILE TEST.

Chron. Age Group.	Mental Age.																				
	5			6			7			8			9			10			11		
	P	F	%	P	F	%	P	F	%	P	F	%	P	F	%	P	F	%	P	F	%
21 or above..	0	6	0	0	7	0	3	9	25	2	9	18	4	7	36	17	10	63	11	1	91
20 or below..	0	9	0	1	12	7	0	9	0	1	5	16	17	9	65	22	3	88	6	1	85
15 or above..	0	8	0	1	14	6	3	14	17	2	11	15	16	16	50	36	13	73	15	2	88
15 to 21.....	0	2	0	1	7	12	0	4	0	0	3	0	10	8	55	19	3	87	4	1	80
14 or below..	0	7	0	0	5	0	0	5	0	1	2	33	5	2	71	3	0	100	2	0	100
Total over 21 = 86 Total below 21 = 93 Grand Total....179																					

Under each mental age are given three columns, one showing the number of passes (*i. e.* when subject puts the parts together correctly within five minutes), one the number of failures, and the third the percentage of passes. The first column gives the chronological group considered and by reading across the table is found the increase in efficiency from mental age to mental age, by reading up and down is found the difference in efficiency for each group in any mental age. There are 179 cases recorded, 86 above twenty-one chronologically and 93 below twenty-one. This table is not so satisfactory as table I in showing these group differences because of the relatively few cases tested below 15 years.

Below age IX there is no basis of comparison because of the lack of subjects. In age IX however we find that those below fifteen have a percentage of passes of 71, those below twenty-one have 65 per cent, those fifteen to twenty-one have 55 per cent, those above fifteen have 50 per cent, while those above twenty-one trail along behind with only 36 per cent of passes. It is significant that even with the small number of cases we find exactly the same tendency that manifested itself in table I. In age X we find the same tendency as in age IX but to a lesser extent, as in table I.

In the Cube Test it is obvious that the test does not depend upon experience in the limited sense of the term as we use it, but depends upon the ability to imitate, to attend to an externally enforced rhythm. It may be said that the Feature Profile Test depends upon school training in that children in school play with blocks and puzzles, but even so the test is so simple that an adult (who has had years of school training also) were he really of the same mental age as the child would be as efficient in meeting the new situation. We hold then that it is not a question of physical growth but rather of a too liberal estimation of an adult's intelligence by the Binet-Simon scale.

In conclusion we may ask, what does all this show? We believe that first, it is of value in calling attention to the fact that the interpreter of Binet test results must take into account this factor of experience when summing up his case, and secondly, that tests dependent upon experience (when proven so by sufficient evidence) should be eliminated from scales designed to test adults over fifteen years of age, and thirdly that it is of the utmost value as a method of determining the relative value of any additional tests that the psychologist may wish to standardize. With reference to this last point we mean that by this method we have empirical proof that the test in question is or is not a *real* test of general intelligence. Using this method then as a criterion, we can say that naming the days of the week and the months of the year (and possibly other Binet tests such as counting thirteen pennies, copying a square and a diamond, naming colors, telling forenoon from afternoon, and defining in terms of use) lack the essentials of true intelligence tests while other tests such as the Knox Cube Test and Feature Profile Test possess those characteristics which meet the requirements laid down by Stern for tests of general intelligence.

MORAL IMBECILITY FROM A RESPECTABLE FAMILY.

By Margaret Otis, Ph.D.,
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The term *moral imbecile*, used in contradistinction to *mental defective*, indicates that the individual in question is bright in most respects, but is incapable of appreciating moral standards as ordinarily accepted. The question whether there are moral imbeciles according to this definition is debatable. The difficulty is that moral standards are constantly changing, different races and different nationalities have varying standards, and the various social classes at present existing have standards which are not compatible with one other. In addition to this difficulty comes in the time-worn argument as to whether the moral sense is acquired or inherited. Is the appreciation of the difference between right and wrong a unit character which can be handed down from generation to generation according to the Mendelian law?

It seems unfair to take as an example of a moral imbecile one of the type usually selected. The social standing of the parents is important in this regard and also the early environment. Are not most of those ordinarily classed as moral imbeciles such because of environment? A case should be selected where the social standing of the parents is good and the environment cannot be questioned. Then the mental capacity of the individual must be tested carefully so that it is perfectly clear that defect of moral view-point only is involved. It might be noted in passing that most delinquent girls have faulty environment, so that it is difficult to find from this field a case for consideration under this head. The following case, however, presents some features which would justify such a classification, and is submitted for consideration as possibly a true moral imbecile.

Nell Lewis was the child of respectable parents who lived in a town in the northern part of New Jersey. The environment of the home was that of the average middle-class household. The father was industrious, the mother had aspirations for an intellectual life for Nell and wished her to go to college. Every advantage that would conduce to this purpose was given the girl. Physically Nell was remarkably well developed. She was born at full term and was a very lively baby and exceptionally well, but was always headstrong and very stubborn. She was deceitful, seemed restless, and would never settle down to anything. Her mother said that she always wanted to be "bigger than anybody else" but did not inherit this characteristic from anyone in the family.

Mentally Nell appeared to be perfectly normal. On the Binet testing she missed but two questions, one the long sentence in the XII group, the other the rhymes in the XI group. Her associations were logical, and she did well on other tests. She had had a fair education. had gone through the second year of high school, had studied in a business college, and had been a stenographer for a year and a half.

Morally Nell was undoubtedly defective. The tendency to deceive her mother seemed to be the starting point of her criminal career. She was committed to a Home for Delinquent Girls on the charge of larceny. She had been guilty of larceny on two or three different occasions. She was suffering with venereal disease, and had been in a private institution in New York City. All her wrong doings were done secretly. Her troubles seem to have begun when she was a small school girl. It seemed impossible for Nell to speak the truth. She would invent a long story, later would say that her conscience troubled her and that she wished to tell just how the event actually occurred, but what she told on the second occasion was no more the truth than what she told on the first. Nell was never trusted out of the Home all the time that she was under state care. She was in all the mischief that she could well be during this time, and was among the foremost in having love affairs with the colored girls. It was learned from one of Nell's friends that she had once told her that she had "killed a fellow." He was an Italian and Nell had shot him and covered him with leaves. She had escaped to town and had gone to a nursing school. She supposed she would go to State's Prison, but her mother pleaded for her to have her sent to the Girls' Home instead. This report of Nell's having committed murder was learned from another source, for another Home girl had made the statement that there was a rumor among the girls to the effect that Nell had killed a man. This was probably mere bravado, and was due to Nell's love of the sensational and desire to pose as a heroine in the eyes of the girls.

An effort was made to find out from Nell her own interpretation of her moral delinquency. She was asked what was the reason for her first lapse from right conduct. She said she thought it was a lark, also that when she went to Sunday School, she went to look at the boys and to show her clothes. There was a musician there who played the flute. She hung upon him and went around to the rehearsals. She never had any compunction as to her wrong doing. She never gave it a thought, thought it was smart. In dancing she thought of the prize she was going to get. She used to wonder if her father was following her up. She did all her wrong doing without the knowledge of her father and mother. Her mother was hard of hearing, so that made it easier for her to get out nights. She used to get out of the window and slide down a pole. She used to go in swimming, and went with an expert swimmer. She became sunburned, and her mother asked her what was the matter. She said: "When I was working lime blew in my eyes." At one time she had had friends who were good girls, but later she preferred the "fast set" rather than the "goody-goods". When asked if she was ever under her mother's influence, she said: "No, if she ever started preaching to me, I got out." Nell said that she used to get medals as prizes for dancing. She sold them and gave the money to young men. One of them wrote to her and her mother opened the letter when she was away. Nell was supporting this man by money she earned getting prizes. He was a gambler. When asked how she felt in regard to this way of living, she said that then she thought just about having a good old time, she wanted to be popular with the bunch.

As an experiment Nell was given some moral instruction to see if she might be capable of benefiting thereby. In any discussion it was not easy for Nell's mind to get beyond the concrete. It may be suggested at this point that this characteristic indicates a certain mental defect. A certain level of intelligence is required for the appreciation of abstract truth, and this level Nell did not reach. The difference between subjective and objective was explained to her and at times she seemed to understand this, though often with this and other things it was more a matter of verbal memory. She could remember well the explanations that were given her.

The following association test was given with the purpose of bringing out the trend of her mind. A paper was given Nell on which was written a list of words with the instruction that she should write down the very first thought that came into her mind on seeing the word. She seemed to carry out this instruction conscientiously, thinking that it was intended as an examination of her school knowledge. The words and responses were as follows:

Interest	I thought of my lesson of interest and discount when I was studying bookkeeping.
Curiosity	To know whether certain things I heard about my going out were true.
Passive	I thought about the meaning of this word right after reading the word. Quiet, a person can be passive, don't race around.
Knowledge	I was thinking if I could have more knowledge than I have about my inner soul.
Truth	I thought of the thought you gave me about truth.

Excitement	I thought of how excited I was when I was told I could go to the car to meet the Superintendent.
Desire	Of the time I would be a nurse.
Honesty	Honesty is the best policy.
Success	Wondering if my nursing would be a success. I am always thinking of nursing.
Wilfulness	I try to be very wilful. I was just wondering if I were as wilful as I might be.
Love	I have been trying to put my love on thoughts of the sewing I would have to do when I leave here.
Mechanical	My first thought was of a mechanic. Then I thought of a friend I had who was one.
Criminal	"*I never was a criminal*" was my first thought.
Hope	I hope to be a good woman some day.
Instantaneous	Instantaneous means anything said or done right on the dot.
Beauty	Beauty means anything that's pretty to the eye.

At another time the same experiment was tried with the following responses. What is especially to be noted in these responses is the constant reference to self. This indicates an extremely self-centered individual, and such an inference is certainly justified in this case. The same instruction was given as in the experiment above.

Riches	I thought first about some people I know by the name of Rich.
Pleasure	I was thinking of how I thought out "subjective and objective pleasures."
Mischief	My first thought was about all the mischief I have been in.
Jealousy	My first thought was about what the minister said one Sunday: "*Jealousy leads to murder.*"
Meanness	Some people are very mean.
Self-consciousness	My self-consciousness has proved itself.
Vigor	I have lots of vigor.
Deceitfulness	*I am not deceitful.*
Monstrosity	The word puzzled me at first.
Egoism	I had this word in class.
Pride	I take lots of pride in trying to keep myself looking neat.

Ignorance.........	*I am not ignorant.*
Hatred...........	I have noticed the hatred of many people.
Buoyant..........	I am very buoyant.

It is interesting to note that some of the responses in this association test could be used as an indication that there might be some truth in the rumor current in the Home as to Nell's criminal career.

As to the question suggested above of considering this girl a moral imbecile, it may be urged that the lack was in the mother who failed early to get control of the child. A strong personality in the mother, perhaps, would have been able to cope with the strong-willed child. Yet, after all, Nell chose her own. She had the opportunity of associating with the best, was even urged and pushed toward what is regarded as the highest type of life. Yet with all that, though the best was placed before her, she preferred the worst. Like attracts like. She gravitated to her kind, and her kind apparently were not the kind of her parents.

REVIEWS AND CRITICISM.

The Psychological Methods of Testing Intelligence. By William Stern. Tr. by Guy Montrose Whipple. Baltimore: Warwick and York, 1914. Pp. x+160. (Edu. Psych. Monographs No. 13.)

The work of which this is the English translation, was completed in German in October, 1912. Therefore it necessarily fails to cover the very extensive discussion of tests, which has been carried on the past two and a half years.

Professor Whipple remarks that this "book affords what is, so far as I know, the best, and in fact almost the only authoritative, critical, and compact general survey of the literature of intelligence testing, which is adapted for lay readers as well as for professional psychologists." It will be observed that Dr. Stern's critical faculty expends much of its force upon the literature of testing, and does not go far enough in questioning the validity of the concept of 'intelligence' as used by the testers. After saying, "We not only limit intelligence by setting it over against the emotive and volitional nature of an individual, but also ascribe to it a definitely restricted place within the mental functions," he proceeds to formulate his own definition as follows: "*Intelligence is a general capacity of an individual consciously to adjust his thinking to new problems and conditions of life,*" and adds, "If talent be a material efficiency, intelligence is a formal efficiency." Dr. Stern trusts "that distinctions may serve to lessen the confusion that has been current," but confusion certainly reigns in his definition until we recall the Platonic distinction between matter and form, and understand the peculiar sense in which he is using 'material' and 'formal.' This may be partly due to the translator. Dr. Stern is none too clear, again, when he says, "The fact that intelligence can be more easily treated quantitatively than can other individual capacities, must not lead us to overestimate its import. Nevertheless the fact that we can deal with intelligence by itself, does serve to disclose the structure of the personality. We can determine whether a performance of greater or lesser degree depends on talent or on intelligence; we can investigate what degree of correspondence exists between the experimental results and the teachers' judgments of the intelligence of pupils."

Three main lines of activity furnish Dr. Stern with the principle of division of his treatment: (1) single tests; (2) the Binet-Simon scale; (3) the correlation methods of Pearson, Spearman, and others. With regard to the slow growth of method he comments, "It will be long, very long, before we realize the optimistic hope that Spearman attaches to the correlation method of testing intelligence, when he says, 'Indeed, it seems possible to foresee the day when there will be an annual official determination of the intellectual index of every child in the [British] empire.'" Dr. Stern emphasizes the fact "that tests of intelligence are not easy to conduct. Their administration demands extended practice, psychological training, and a critical mind," and he cites as an example of the commonly prevailing mistaken ideas upon this matter, Captain Meyer's [of the German army] declaration that "in military enlistment tests of intelligence could some day be carried on quite mechanically by subalterns."

In the beginning, "For a long time," says Dr. Stern, "we started from the erroneous presupposition that any psychological method of experimentation would be really usable as a test," and he considers, "A significant advance was made when it was recognized that tests of intelligence must be definitely selected on the basis of certain presuppositions that were to be made concerning the nature of intelligence."

"Various psychologists," Dr. Stern remarks, have considered various "mental functions to be the touchstone of intelligence." He mentions the "combination" or "completion" method of Ebbinghaus; Ries' word-association test; "the combination test of Masselon in which a meaningful sentence is to be made from three given words," and Meumann's elaboration of this test to require a logical or moral connection between the words combined; Heilbronner's picture-test; and Bernstein and Rossolimo's use of cut-up pictures which are to be fitted together. "In an earlier stage of his work," says Dr. Stern, "Binet believed that the essence of intelligence was capacity to adjust attention. . . . In the work of Meumann we note at times the laying of a certain one-sided emphasis on the understanding of the abstract as being the root of intelligence. . . . Quite a number of investigators have directed their attention particularly to capacity to apprehend, as the index of intelligence."

A third main class of tests includes "those patterned after familiar pedagogical tasks," and here we are surprised to find no mention of Mr. Courtis' work, the first reports of which appeared as early as September and November of 1911. Not being aware of the Courtis tests, Dr. Stern is to be pardoned for his comment, "The intelligence of individuals that are working or that have worked, under different school conditions cannot be subjected to comparative tests by means of these activities."

In his fourth main class Dr. Stern places those tests which "aim to secure records of such evidences of intelligence as are accepted in ordinary life as special evidence of it. These direct tests of intelligence have been specially developed by the psychiatrists; they comprise such things as defining, comparing, differentiating, the understanding of proverbs, grasping the point of a joke, seeing absurdities in verbal or pictorial presentations."

"*No single test, no matter how good it may be,*" says Dr. Stern, "*should ever be made the instrument for testing the intelligence of an individual.*" He seems to have no appreciation of the formboard as a testing device—indeed, he fails even to mention such a thing. Had he studied the operation of the formboard test with normal and subnormal children, it is almost certain that he would have wished to retract this sweeping opinion.

From a study of separate tests, "three things are evident: first, *series* of tests must be arranged that will set in play the various constituent functions of intelligence; secondly, for this purpose there must be a wise *selection* of tests, . . . thirdly, there must be created a system by means of which the several particular results of the testing can be united into one *resultant value, i. e.* a value that shows the grade of intelligence of the subject objectively in an inclusive formula in which performances of different degrees of value shall in some way be compensated."

"Numerous test series," Dr. Stern explains, "have been used by the psychiatrists for testing intelligence," and among them he mentions the classifications of Sommer and of Ziehen. A highly interesting method of testing and recording mental ability is that of the Russian alienist, G. Rossolimo, and we could wish that Dr. Stern had given us more information about it. "Rossolimo," he says, "has contrived ten tests for each of ten different mental functions. The results obtained from the single subject are set out graphically by erecting ordinates corresponding to the number of the tests achieved for each of the functions under test. The ends of these ordinates are then joined to make a curve that Rossolimo calls the 'individual profile'."

Part II, which comprises the middle two-thirds of the book, is concerned with the method of age-gradation (Binet-Simon method). The discussion here will be largely an old story to Americans who have followed the work of Goddard, Wallin, Johnstone, Terman and Childs, Pintner, Town, and others in this country. Dr. Stern deals all too briefly with a phenomenon which has drawn the attention of many clinical psychologists who have applied the Binet tests, *i. e.* the *range of irregularity* (*Streuungsbreite*). "A child whose successes and failures are strewn irregularly over test-levels from six to ten years has the same mental age, to be sure, but a very different range of irregularity, when compared with another whose mixture of successes and failures lies in the seventh to the ninth years only. Bobertag, who first gave attention to the importance of differences in ranges of irregularity, has devised a way of computing this factor; I have myself suggested another way, but neither has been published as yet." Further on he says "*The area of irregular distribution is very much wider with the feebleminded than with the normal child.*"

Part III deals with estimation and testing of finer gradations of intelligence. Dr. Stern decides that neither the Binet test nor the ordinary school ranking is adequate to show the *degree* of intelligence of the pupil. He asks, "*Is it possible, on the basis of a short examination with a series of tests to arrive at a gradation of pupils that corresponds with their actual differences of intelligence and such that the rank that each gains is sufficiently characteristic of his grade of intelligence within the group?*" He finds of dubious value Spearman's method of testing and correlating, because "The mere comparison of tests with one another affords us neither a clear insight into the necessary compensations, nor a decision as to the symptomatic value of the testing; *rather must we seek the means of gauging the tests in some criterion that lies outside of experiment.* Such a criterion is supplied by the estimation of the pupils made by the teacher." He approves Binet's suggestion that this task of estimating intelligence be assigned to "teachers specially trained and specially gifted in psychology," and he adds with emphasis, "*Only those pupils should be located in a given rank-order of intelligence that are sufficiently like one another in other respects.*"

In this connection Dr. Stern contributes some original investigations of his own, in which he had three different teachers estimate the intelligence of an *Untertertia* grade in a *Gymnasium* (equivalent approximately to our first high school year). He comments upon the result, "This decided correspondence of the judgments of the teachers on their pupils' intelligence, taken in conjunction with the fair degree of independence of their judgment from the class-place, seems to me to be a forcible argument for the scientific usefulness of the method of intelligence estimation." In conclusion he sums up the points to be observed in working at the problem of ranking by tests, as (*a*) measurability; (*b*) reliability; (*c*) fairly high correlation; (*d*) comprehensiveness; (*e*) estimation of intelligence; (*f*) construction of an amalgamated rank-order.

The book has a complete bibliography of material published from the summer of 1911 until September, 1912, which is intended to supplement the bibliography contained in Dr. Stern's earlier work, *Die differentielle Psychologie*. Professor Whipple has done a real service in making this discussion of intelligence testing available for English readers.

A T.

NEWS AND COMMENT.

Employment and Compensation of Prisoners.

The Pennsylvania Branch of the American Institute of Criminal Law and Criminology held its fifth annual meeting in Witherspoon Hall, Philadelphia, on Wednesday evening, April 14th. The topic for discussion was "The Employment and Compensation of Prisoners." Hon. Robert Ralston, Judge of Common Pleas Court No. 5, and President of the American Institute, presided at the meeting.

The commission appointed by the governor to consider provisions for the employment and compensation of all inmates of penal institutions, recommends the employment and compensation of all prisoners; the adoption of the State-use system; the creation of a central board charged with the production and sale of the goods; the abolition of county jails, and the formation of six state industrial farms. Bills drafted by the commission, containing these recommendations, are now pending in both branches of the legislature.

National Conference of Charities and Correction.

The forty-second National Conference of Charities and Correction will meet at Baltimore, Maryland, May 12–19, 1915, with headquarters at the Hotel Belvedere. The conference consists of nine committees, each concerned with a distinct social or charitable problem, as follows,—Children, Corrections, Education for Social Work, the Family and the Community, Health, Public and Private Charities, Social Hygiene, Social Legislation, and State Care of the Insane, Feebleminded and Epileptics. Those interested may address the National Conference, 315 Plymouth Court, Chicago, Illinois.

American Academy of Political and Social Science.

The nineteenth annual meeting of the American Academy of Political and Social Science will be held on Friday and Saturday, April 30 and May 1, 1915, for the discussion of "America's Interests as affected by the European War." The four morning and afternoon sessions will be held in the auditorium of the Hotel Walton, the two evening sessions in Witherspoon Hall. The gatherings will be addressed by a notable array of persons prominent in American affairs, national, municipal, social, and academic. Official delegates appointed by the governors of the several states of the union will attend, as well as delegations of national civic and trade organizations and peace societies. The secretary of the American Academy is Prof. J. P. Lichtenberger, of the University of Pennsylvania, to whom inquiries may be addressed.

A New Series of Monographs on Criminal Science.

The Journal of Criminal Law and Criminology is entering upon the publication of a series of monograph supplements which will be known as Criminal Science Monographs. The first monograph is now in the press and will appear early next fall under the title "Pathological Swindling and Lying." Dr. William Healy, of Chicago, is the author. The volume will approximate two hundred pages. Each number in this series will be attractively bound in cloth, and will come from the press of Little, Brown and Co., Boston, Mass. Persons who have manuscripts in hand or in preparation, which they wish to have considered for publication in this series should communicate with Professor Robert H. Gault, Northwestern University, Evanston, Illinois.

National Effort to Improve Teaching on Tuberculosis.

For the purpose of securing more co-operation from physicians and nurses in the anti-tuberculosis campaign, The National Association for the Study and Prevention of Tuberculosis has inaugurated a movement to bring the importance of this subject to the attention of these two groups, according to an announcement made from headquarters today.

Among the first things which the Association is trying to do is to induce the medical colleges and schools of nursing to give more instruction, particularly of a clinical nature, on tuberculosis. An effort will be made also to reach the individual practitioners and nurses by special booklets prepared for this purpose. The clinical and other facilities of the various organizations affiliated with the National Association will as far as possible be made available for the widest possible use in training doctors and nurses in tuberculosis work.

"The object of this campaign," says Dr. Charles J. Hatfield, Executive Secretary of the National Association, in making the announcement, "is primarily to secure more accurate and earlier diagnosis of tuberculosis on the part of physicians, and to show nurses the great opportunities of service in the home care of consumptives. We shall also be able to put the average family physician in touch with the best methods of treating tuberculosis and with the most recent literature on that subject, thereby affording to the general public increased protection from this disease. Practically all of the medical colleges and schools of nursing of the country have expressed their approval of our plan and have offered to co-operate with us. While the medical profession generally has unselfishly assisted the nation-wide campaign against this disease, we feel because of its prevalence, tuberculosis should be given special attention by medical students and practicing physicians everywhere. No other single disease demands so much time and attention from the general practitioner in medicine. We shall try to make it easy for any doctor or nurse to acquire a specialized knowledge of tuberculosis."

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ON THE RELATION OF INTELLIGENCE TO EFFICIENCY.

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An important chapter in ex-President Eliot's recent book, "The Road toward Peace," treats of the diverse character of "national efficiency" under free and autocratic governments in a manner which tempts me to contribute, not as so many have done to the polemics of the current European war, but to the differential diagnosis of efficiency and of a mental trait, intelligence, on which efficiency in part depends. While Dr. Eliot's book gave the immediate impulse to the preparation of this article, my subject matter and treatment are the outcome of experimentation with so-called intelligence and efficiency tests.

At some points my analysis compels me to propose a revision of Dr. Eliot's terms, but I intend only the constructive criticism of admiration. The acumen and insight with which he presents the psychological factors of success in war and peace, put to shame the work of some professional psychologists in the field of social and individual diagnosis. Consider for example, this differential diagnosis of Professor Münsterberg's:—"The southern peoples are children of the moment: the Teutonic live in the things which lie beyond the world, in the infinite and the ineffable." No wonder we think of Harvard's department of psychology as virtually an "outpost of Kultur," and only incidentally a psychological laboratory.

Dr. Eliot considers the present war to be a supreme test of British, French, and German efficiency. "The real issue this war is to decide," he tells us, is "the question of civilization developing under the forms of free government rather than under the forms of autocratic government," and he continues, "it becomes a very interesting study for all the freer peoples how German efficiency is going to turn out in competition with such efficiency as the freer nations develop." While Dr. Eliot's treatment of the difference between German efficiency on the one hand, and British or French efficiency on the other, has reference to national interests of immediate concern, a penetrating analysis of the nature of intelligence and its relation to efficiency is essential to a satisfactory treatment of many other problems. Efficiency is now a popular catch-word in the criticism, not only of public administration, industrial organization, and productive processes, but also of educational procedure, where it has even been put forward to measure the value of the scientific output of university laboratories. Efficiency, its causes and its differentia, is a field of direct inquiry within the science of psychology.

Clear thinking and precise expression are difficult when we lack the necessary words to indicate differences which we know exist. A vocabulary develops more slowly than our apprehension of differences. This is eminently true of the science of psychology, which has not as yet been able to produce a technical vocabulary that shall be both precise and adequate. In the present instance I believe that under the term *efficiency* are indiscriminately grouped two very different kinds of human performance. For the one I propose the word *competency*, for the other I would reserve the word *efficiency*. Dr. Eliot differentiates clearly enough the two kinds of performance. Thus he speaks of "the German method of efficiency all the way through industrial life — giving instruction and training enough to produce the amount of skill needed for the daily task, and then enforcing that subjection of the worker which results in thorough co-ordination and co-operation in the complex processes of production. The efficiency of the military system is obtained in like manner — by thorough training which leads to the instinctive cooperation of the individual with a mass of his comrades, and to an absolute obedience unto death." Of the "freer nations" he says, "The efficiency of all these nations is based on a high degree of personal initiative and of political and industrial freedom, not on the subjection or implicit obedience of the individual, but on the energy and good-will in work which result from individual freedom, ambition, and initiative." This is the kind of efficiency that I suggest we now call competency, a term which I have chosen after a careful consideration of other terms having a similar meaning, such as capability, aptness, etc. In one passage Dr. Eliot himself has not been able to dispense with the use of this word. In discussing the German system of education and government, he tells us that "under free governments and in communities which have a fair amount of social mobility, the rare men are surer to come forward into vigorous action," and continuing, he speaks of these men as "the men who are *competent*, not only to invent or imagine the thing or the method that is next wanted, but to put their inventions into practical form, and to make them useful in the actual industries of their nations and the world." Here and elsewhere he suggests what is to be my express contention, that competency will tend to develop and use efficiency, but that efficiency does not necessarily produce competency.

The Problem

The issue thus presented is a fundamental problem in psychological diagnosis, for the differentia of efficiency, competency, and intelligence, inevitably arise and require analysis, whenever we carry forward any series of mental tests. For purposes of illustration, let the test be the adding of a column of figures. Different persons will add up a column of figures with different degrees of accuracy and at different rates of speed. After many repetitions of the test, most individuals will add a column of figures of equal length with greater accuracy and speed than at the first trial. If two individuals, A and B, start with the same initial efficiency, measured in terms of accuracy and speed, and after an equal number of repetitions attain an equal efficiency, A having been given the best instruction and training known for acquiring accuracy and speed, and B having been left to his own devices, we have some ground for diagnosing B as a more competent person than A. B has acquired efficiency by the exercise of his own intelligence, while A has employed imitation, memory, and perhaps other mental faculties, to acquire and use the results of his teacher's knowledge, which itself is a product of the collective intelligence of the community relating to this special problem. The source of efficiency is therefore of diagnostic importance if we would interpret the significance of different degrees of efficiency in different persons.

If I call C more efficient than D, I affirm an efficiency difference without expressing any opinion as to the origin of this efficiency. We can call machines and persons efficient or inefficient, but we do not speak of a machine as competent. If, then, I call a person competent after having observed some efficient performance of his, I am ascribing to him a certain measure of intelligence which is assumed to be an active agent in producing his efficiency.* I may call him efficient and yet know nothing about his intelligence. An efficient person may or may not be intelligent, for even stupid persons can be trained to be efficient. In a given situation the competent person will probably employ his intelligence to acquire efficiency, but on the other hand, he might reveal greater intelligence by refusing to become efficient. It is not an unusual experience to find in schools and elsewhere, individuals who are inefficient in the simpler performances of life, and yet competent in fields of higher endeavor. An inefficient college student may show himself competent as a lawyer or doctor. An inefficient bank clerk may make a competent bank president. An inefficient junior officer in the army may make a competent commanding officer. General Grant refused the training of West Point, not being able to graduate, but showed his military competency in the supreme test of war. The resistance which is encountered in the introduction of civil service examinations, and of efficiency tests in industrial organizations, in schools and colleges, is based to some extent on the implicit recognition of this significant distinction. Our big industrial plants have just been welded into shape. The men at the top, who have performed this task, were competent men who did the thing themselves. They have compelled their subordinates to become efficient. We must be careful that in compelling efficiency we do not destroy natural competency. Who will fill the positions at the top in the next generation? Is a path being kept open for the competent, though inefficient, person to rise to the top? Do German government officials, perhaps even the military organization of Germany, suffer from an excess of efficiency? If the British nation is competent enough, it will "muddle through" again. The efficiency expert, who observes the inefficiencies of a none the less competent person, forgets that after all the main issue is the accomplished result, and the muddler who just gets through may count for as much as the best exponent of the specialized efficiencies.

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* Competency and intelligence are teleological concepts, while efficiency as I define it is a mechanical concept. Whether competency and intelligence may ultimately be resolved into mechanical concepts, I do not propose to discuss. For my present purpose, it is unnecessary to decide upon one attitude or the other. With respect to efficiency, however, I believe it must be used restrictedly as a mechanical concept. If we explain an efficient performance as the product of inherent efficiency in the performer, we shall make no progress in our treatment of this problem. To say that efficiency causes efficiency, is like saying that a log floats because it has the property of flotation. To say that efficiency is a product of intelligence, doubtless affords only a partial explanation, but at least we are on our way, and after we have taken the first steps of our analysis, we may proceed to analyse intelligence itself.

The uses to which words are limited in ordinary language often reveal subtle differences in meaning, which are obscured by their definitions, for the definition is a formula, and in language as well as in science the proper formula can be developed only after observation and analysis. We speak of an efficient accountant or even an efficient teacher, but we do not speak of an efficient poet, unless it might be the poet laureate, whose function it is to produce poems to order. We do not call an artist efficient, although we may perhaps speak of an efficient illustrator. We do not characterize a great composer as an efficient musician. This limitation in the use of the term *efficiency* bears witness to the fact that production is an art as well as a science. We can and do analyze complex human behavior into simple elementary performances, and we measure the efficiency of these performances. When we discover and measure the efficiency of a performance, we rightly diagnose the performer as efficient, but if we go further and diagnose the performer as competent, or grant him intelligence, perhaps even "genius," we do something more than discover or measure the efficiency of his performance. We interpret the performance as a manifestation of intelligence.

Suppose we set out to test a class of children, and employ for the purpose some problems in arithmetic. Certain members of the class solve the problems, others do not. If the problems were designed to test the elementary operations of addition, subtraction, multiplication, and division, and the children are, say, in the seventh or eighth grade of public school, however much the children may be shown to differ in efficiency, the resultant efficiencies will not serve to indicate differences of intelligence. If the problems, however, are sufficiently difficult, especially if they require the pupils to employ their knowledge of the elementary processes in some new field of application, we may be able to interpret differences in the performances of the children as differences of intelligence. Take two different children—the same test with identical results may reveal the intelligence of one child, and yet tell us nothing about the intelligence of the other. A three year old child may play with blocks in such a way as to reveal the fact that he has been endowed by nature with intelligence. A lecturer may talk for an hour and display little or no intelligence. We see a chimpanzee sit down at table, eat and drink, ride a bicycle, use a key to unlock a door, and we marvel at the animal's intelligence. Do we really observe the intelligence of a child or animal? As a matter of fact we observe it no more than we feel some one else's pain.

It is all a matter of interpreting behavior, or using the seen performance to diagnose an unseen quality of the performer. The only intelligence of which you can be directly aware when you observe the performance of another, is your own intelligence. In observing and interpreting a child's performance, you doubtless believe that you are exercising this intelligence. What you think of your own intelligence is as liable to error as what you think of the child's performance. Your opinion of yourself and of your intelligence may be subjected to diagnostic criticism; your opinion may reveal intelligence or not, for your interpretation of your own or another's performance is also a performance. We have a natural predilection to impute intelligence to ourselves and to think that our actions flow from this. The timid woman who fears a thunderstorm and shuts the window and then gets beneath the feather-bed, interprets her performance in terms of intelligence. She says that she is afraid of the lightning, although careful observation shows that her real fear comes more from the noise of the thunder. She says that she shuts the window because a draught may carry the lightning in, and that a feather-bed is a nonconductor. No amount of scientific explanation will assist her in overcoming her fear. Offer her statistics which demonstrate that she stands a greater chance of being killed every time she takes a train than she does during a particular thunderstorm, and your dissertation will leave her cold. She is wrong in interpreting her behavior in terms of intelligence. It should be interpreted in terms of instinctive and emotional reactions.

What do we observe in a performance which causes us to call the performer intelligent, to look upon his performance as in part at least due to his intelligence? In unfolding my analysis of what we mean by intelligence, I find it necessary first to distinguish between intelligence *levels* and intelligence *grades*. For example, we speak of a chimpanzee as being more intelligent than a sheep, but less intelligent than a human being. We distinguish the intelligence of an imbecile from the intelligence of a normal child. We are all agreed that in some sense of the word, a normal child has less intelligence than a normal adult, and that a savage differs in intelligence from a man of science. In all the cases just enumerated, we are distinguishing *intelligence levels*, which are determined by the *average day in and day out performances.* * When, however, I say of my college students that one is more intelligent than another, I am employing the term *intelligence* in an entirely different sense. Intelligence differences in this sense of the word I propose to call intelligence grades, and I measure or estimate the grade of intelligence from something I observe in the performance, as this is related to something which is not observed, but which I affirm to exist in the performer. Intelligence in this sense I define as the *ability of the individual to solve what for him is a new problem.*

Before I proceed to consider what I mean by the words, "what for him is a new problem," let me point out certain unjustifiable uses of the word *intelligence*. Psychology is a science of behavior, but not of all behavior. It does not, for example, concern itself with the behavior of plants, but only with those performances for whose adequate explanation we are compelled to posit the existence of conscious states like pain, sensations of color, æsthetic feelings, emotions, thoughts, and ideas. These conscious states are not merely posited as existing entities, but in many cases are assumed to be causes or active agents in the production of behavior, as when I say my friend struck me because he was angry, or the child cries because he wants his dinner. Science calls this kind of explanation teleological, and there has always been a tendency in science to unify the diversity of conscious states in a single teleological concept. At one time this is *psyche*, from which we get our words *psychic* and *psychological*. At another time it is *mind*, from which we get such words as *mental* and *mentality*. At another time it is *reason*, as when we say that man does by reason what the animal does by instinct. At another time it is *the understanding*, or *memory;* and now the current fashion in psychological terminology shifts to the word *intelligence*. When, for example, a psychologist entitles his course of lectures, "Non-conscious Factors in Intelligence," and considers under this caption such topics as "The Simpler Expressions of Intelligence, Memory and Sensorial Functions," or "More Complex Forms of Control, Reasoning and its Components," or again "Language," and "Inherited Expressions of Intelligence," he appears to be using the word *intelligence* to mean what others have meant by *consciousness* or *mind*. Entitled "The Non-conscious Factors of Consciousness," the course would appear what it really is, a conservative treatment of a familiar theme in physiological psychology. The touch of fresh paint to the old sign board is the word *intelligence*, which today is the central problem in clinical psychology. This problem is not directly concerned with consciousness at all, but with the analysis and abstraction of a particular quality of behavior, to which quality I would limit the meaning of the word by precise definition.

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* If you ask, is Philadelphia a hotter place than New York?—I can only answer this question by ascertaining the average daily temperatures of the two cities for a year or a longer period. The average of average daily temperatures I may call the temperature level. When we assert that the college professor is a man of higher intelligence than an unskilled day laborer, do we mean anything more than that the average level of daily performances is higher in the one group than in the other?

Precision of thought will never be reached in psychology if intelligence as a term is thus confused with mind or consciousness. Nor can we omit to discriminate between intelligence and *intellect*. The learned man, the university professor, exercises his intelligence almost exclusively within the intellectual sphere. Consequently, he likes to measure intelligence in terms of intellectual activity. It may or may not be true that the highest grades of intelligence are revealed only in the intellectual sphere, but it is important to distinguish one thing from the other, and to recognize the possibility that a man or a child may be intelligent without being at all intellectual. When, therefore, a recent writer says of universities that they are "the very citadels of intelligence, the guardians in trust of the higher intellectual life of our nation," he apparently considers the sphere of intelligence to be co-extensive with that of the intellect. If he is employing intelligence in the sense in which I define it, his statement is false. I do not believe that universities are any more citadels of intelligence than is Congress, or the board of directors of some large corporation. The members of a college faculty are, it is true, guardians of the higher intellectual life. The performance level at which they manifest their intelligence is higher than the performance level of, say, the students whom they teach, but I should look with despair upon my task of instructing college students, if I did not think that even the freshman class contained more than one student of greater intelligence than fifty per cent of the college faculty. I could entertain no hope for the future of this country, if I did not think that just as intelligent young men go into the industries as go to college.

Again, we must avoid using the term *intelligence* when we mean *reason* or *the understanding*. Reasoning is only one kind of performance, the material being facts. Intelligence is not exclusively a manifestation of the reasoning process, although reasoning, like every other kind of performance, may be employed to grade intelligence. Understanding is also a specialized performance, a prerequisite for which is a stock of information. If I read you a difficult passage, let us say, in psychology, and discover that you have not understood it, I do not necessarily obtain any information as to your intelligence. I may have read the passage in Russian, and you may not have learned Russian, and if I read it in English you may not have studied psychology. I may indeed use your understanding of a passage to ascertain the grade of your intelligence, but I must make my selection with reference to your level of acquired information and accomplishments. The only way in which you can manifest intelligence in understanding, or in reasoning, or in the intellectual field, or in business, or as a college student, or as a school child, is from a relation which must be established between the result of the test, that is to say, the solution of some problems which are set you, and your momentary level of information and training. A particular problem may serve as a test of your intelligence once. If you are very intelligent and have also a good memory, it will rarely serve its purpose a second time, for as I have said, intelligence is the ability of an individual to solve what for him is a *new* problem.

The mere solving of problems, then, is not the criterion of intelligence. Take a college class in some subject, let us say, psychology. I teach this class for a year, and at the end of the year I employ a test, *i. e.* an examination paper consisting of a number of questions or problems which the student is required to solve. Those who give a certain proportion of correct answers, that is to say, solve a certain proportion of the problems, I pass. Have I any information as to whether the students passed have advanced in grade of intelligence during the year? They may have entered my class with a certain ability to solve new problems. They may leave me with the same ability to solve what are for them new problems. I shall have taught them during the year—such is my pedagogical optimism—to solve more problems than they could have solved at the beginning, but all I can learn from the ordinary examination is that they have retained certain quantities of information and been trained to employ the proper methods of solving problems. In one sense of the word, I suppose I may be said to have increased their intelligence. I have raised their intelligence level, more specifically their information and training level—their intellectual level if you please—but in my terminology their *performance level.* A college graduate should have a higher performance level than a high school student. Every college professor should have a higher level than any college student, but it would be foolish to say that every college professor has a higher grade of intelligence than any college student, or that every college student has a higher grade of intelligence than any high school pupil, or that every high school pupil has a higher grade of intelligence than any elementary pupil. There is no proof that grade of intelligence is increased by education, but the level of performance is undoubtedly raised by education. As a matter of fact, I do not know how to compare grades of intelligence in individuals who differ greatly in performance level. How, for example, does the grade of intelligence of a college professor compare with the grade of intelligence of a chimpanzee? If intelligence is, as I have defined it, the ability of the individual to solve what for him is a new problem, it is conceivable that a particular chimpanzee at his level may exhibit a higher grade of intelligence than a particular college professor at his level. Your performance level is doubtless higher than your butler's, if you have one. But do not rashly boast of your superior intelligence before it has been put to a real test. Remember the "Admirable Crichton"!

DIAGNOSTICS

A performance level is defined by the average day in and day out performances of an individual or group of individuals. To define this level it may or may not be necessary for us to study individuals over a protracted period of time. The performance level of the chimpanzee can be precisely distinguished from the performance level of the human being. The one possesses articulate language, and the other does not. But the performance level of the chimpanzee cannot be distinguished in detail from that of the gorilla or the orang-outang, because the behavior of these animals has not been sufficiently studied. The performance levels of feebleminded and of normal children can be adequately stated for many scientific purposes. There exist recognized groupings of feebleminded children, classified with reference to their performance levels, such as morons, imbeciles, and idiots, and among normal children, the so-called mental age levels of children of five, eight, ten, twelve, and fifteen years. In defining the differences of level which are due to education, the ability to read, write, and cipher, separates the level of the illiterate from levels which lie above.

When differences can be arranged in a series of grades or levels, we establish a scale. The use of such terms as *more* or *less*, *greater* or *less*, *higher* or *lower*, implies that we have a scale and that the component grades and levels can be measured, or more or less accurately estimated. When grades of intelligence and levels of performance are confused with one another, it is assumed that both may be graded on one and the same scale. If I am right in recognizing that there is a distinction between grades of intelligence and levels of performance, then it follows that at least two scales are necessary. I propose to show that we need twelve scales in order to arrange in graded series all the differences in behavior under consideration. I shall first define the eight scales of performance level.

There are two growth scales of performance level: (1) the species scale; (2) the age scale.

When we say that a chimpanzee is more intelligent than a sheep but less intelligent than a human being, *intelligence* here means only relative complexity, variety, and number of the daily performances of these three species of animal. At the highest points on the species scale stand the various sub-species of human beings. Below man is the chimpanzee or gorilla, and immediately below this level the orang will probably be placed. Far below these range the horse, the cow, the sheep, the ant, the bee. Students of animal behavior will in time establish the relative position of all animals on the species scale.

An entirely different series of performance levels is obtained from the behavior of the infant, the child, the adolescent, the adult, and at the end of the series, the senile. This series of performance levels constitutes the age scale. The result of a Binet test is to assign a child his position on the age scale. This is called his "mental age". It gives no clue as to the grade of a child's intelligence, although an experienced observer may estimate it from his behavior in solving some of the tests.

There are two sex scales of performance level: (1) the scale of masculinity; (2) the scale of femininity.

We speak of the manly man and the womanly woman, of effeminate men and of masculine women. Exactly what is meant by these terms, and whether performances have a sex quality or not, I confess I do not know. Nevertheless, we must take cognizance of the fact that feminism, meaning effeminacy, is a not infrequent clinical diagnosis. The two sex scales range from a zero point to the maximum of male and female sex characters. Most men and women will be assigned a position on both scales. The ordinary man will have, let us say, 95 per cent or less of masculinity and 5 per cent or more of femininity, and the ordinary woman will have 95 per cent or less of femininity and 5 per cent or more of masculinity. The diagnosis of feminism in the case of a man, means that we assign him relatively a lower position on the scale of masculinity, and a higher position on the scale of femininity. The value of these scales in clinical diagnosis lies in the fact that they enable us to make clear what we mean by feminism, and to distinguish it from infantilism. Thus it is a matter of common belief that women frequently manifest a high degree of infantilism. Infantilism means a lower position on the age scale of performance than the actual age would lead us to expect. It has no necessary connection with either femininity or masculinity. Infantilism is seldom diagnosed in the case of a man, for the simple reason that when it is discovered in the male, it is called feminism. The performances of a male may exhibit either infantilism or feminism, both or neither; the performances of a female, either infantilism or masculinism, both or neither.

There are two culture scales of performance level: (1) the civilization scale; (2) the education scale.

At the lowest point of the civilization scale stands primitive man; at a higher level, the existing savage races; next in rank the barbarian, and then the civilized races, nations, social classes, and families, in the order that our prejudice or the results of investigation may place them. At the top stands the German nation,—in its own estimation. The civilization scale measures the effect of the organized social environment into which the individual is born and in which he is reared. It is the *Kultur* scale. If there are biological differences of race and family stock, these will be represented on the species scale. Germans may place the German race at the top of the species scale, even as they place their *Kultur* at the top of the civilization scale.

At the lowest level of the education scale stand the illiterate. The performances called reading, writing, and arithmetic, are at a very significant point on this scale. Another significant point is that which marks the level attained by the eighth grade pupil of the elementary school system, or by the laborer who in addition to the three R's has acquired some training in a trade. A higher point on the scale indicates the level of the high school graduate, and at the same level I think we must place the business man who has not been to high school but who has obtained some measure of information and training in his special occupation. At this level we may also place the skilled mechanic. A higher point on the scale indicates the level of the college graduate, and not to be distinguished from him in level is the professional man and the man of fairly large business affairs. Near the top of the scale will come those whose accomplishments rest upon a lifetime of education and training, *i. e.* men of science, statesmen, and the foremost representatives of every art.*

There are two normality scales: (1) the deficiency scale; (2) the insanity scale.

At the lowest point on the deficiency scale must be placed the idiot, above him the imbecile, and then the moron at the level which separates the imbecile, who is clearly subnormal, from the normal. The insanity scale, proceeding from the normal, passes through those whom we call unbalanced, borderline types, to those who are clearly insane.

The significant levels in both these scales are determined by social behavior. The line between the normal and the feebleminded child is not drawn with reference to grade of intelligence. Feebleminded children are those whose performances indicate the necessity of a peculiar social treatment, namely segregation. They doubtless have deficient intelligence, but this is not the reason why they are placed in institutions. They must be segregated because they cannot be educated with other children or safely granted an equal measure of independent action in association with other children. Most normal children will manifest deficiency in some performances. The level of the normal child will be an average of many performances, in some of which he will be normal and in others subnormal. An average of sufficiency in performance establishes normality, as an average of deficiency establishes subnormality. The normality point on the scale can be defined only as the average performance level of all the children who remain in the ordinary social environment.

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* Education alone should not be expected to provide what English speaking persons call "culture," nor will the social environment, *i. e.* being born into a good family, nor yet heredity, *i. e.* being born *of* a good family, necessarily equip the individual with culture. In distinguishing the culture levels of different persons, it is well to bear in mind that a given culture level may be determined either by relatively higher position on the civilization scale and lower position on the education scale, or *vice versa*.

The level of those we call normal is therefore to be distinguished from the level of those we call subnormal, by a *patho-social criterion*. On the insanity scale also, at a point which indicates the level of those we call unbalanced, we distinguish by a patho-social criterion those who lie nearer the normality level from those who lie nearer the level of maximum insanity. The insane are placed in institutions, not because they have insane ideas—for many persons whom we call normal have insane ideas—but because their performances render them dangerous to themselves or a menace to society.

I have called these scales normality scales rather than abnormality scales, because the study of the feebleminded and the insane, whereby we establish different degrees of abnormality, is of less concern to the science of psychology than the study of so-called normal individuals. For instance, we would like to know how many deficiencies an individual may exhibit and how unbalanced he may be, and yet pass for normal.*

If the diagnostician will bear in mind that each of the several performance scales represents a different series of facts, he will avoid some interpretations of behavior which give rise to misunderstanding and confusion. The Binet testers assume not only that they are testing intelligence, in which assumption they are mistaken, but also that they can employ one and the same test in order to distinguish the feebleminded from the normal child, and to distinguish the ten year old child, whose mental age is eight, from the ten year old child whose mental age is ten. Feeblemindedness is not backwardness, although the feebleminded child is undoubtedly backward. A ten year old feebleminded child, who has a "mental age" of six years is not at all like a normal child of six. The diagnosis of feeblemindedness will be based upon more than the mere fact of four years' retardation. The performances of the feebleminded are qualitatively and quantitatively different from the performances of normal children. Every child, normal or feebleminded, can be assigned a level on both the age scale and the deficiency scale. The deficiency scale cannot be superimposed upon the age scale to make a single scale.

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* In a later contribution I shall seek to render this point of view more emphatic by designating these two normality scales:—(1) the sufficiency scale, and (2) the equilibrium scale. At the present moment I cannot stop to consider the merits of this proposed terminology, and therefore I adhere to terms which are more nearly in accord with common usage.

By comparing mental age with actual or chronological age we derive such diagnostic categories as *infantilism* and *precocity*. The terms *backwardness* and *retardation* also are employed with reference to the age scale, although backwardness in my judgment should be used only with reference to the education scale. When the Binet tests are adversely criticized on the score that they favor those children who have been well trained at school, we see the necessity of clearing up the current confusion in the use of the terms *retardation* and *backwardness*. The Binet tests may indeed serve to indicate a retarded or arrested growth process, but on the other hand, they *may* indicate only backwardness in education. The terms *retardation* and *arrested development* came into the literature as the result of a partial and perhaps mistaken explanation of the cause of feeblemindedness. Itard and Seguin, in effect, placed the feebleminded on the species scale below the human being, or at least below what was assumed to be the highest biological type of human being, the Caucasian. Thus were secured such diagnostic categories as the mongolian, the aztec, etc., of which but one survives today, and even the term *mongolian* has been stripped of all etiological reference to that race. *Atavism* is a diagnostic category which has reference to the species scale, for an atavistic trait is one that characterizes the behavior of a species lower on the scale than the more highly evoluted modern man. *Primitivism* on the other hand has reference to the civilization scale, and indicates performances standing at a low level on this scale, *i. e.* the behavior of men in less highly organized social environments than ours. *Infantilism* has reference to the age scale, and *backwardness* to the education scale, although the latter term is commonly employed to refer to the age scale, for which reason I have found it necessary to define it more precisely as pedagogical backwardness. A feebleminded person may exhibit atavism, primitivism, infantilism, and pedagogical backwardness, but his feeblemindedness is not to be diagnosed from this symptom complex but only by employing the patho-social criterion to measure the sufficiency or deficiency of his behavior. The terms *retardation* and *arrested development* have a general signification. Retarded or arrested development, referred to the species scale, is atavism; referred to the age scale, it is infantilism; to the civilization scale, primitivism; and to the education scale, backwardness.

There are two scales for grading intelligence: (1) the invention scale; (2) the resource scale.

I have defined intelligence as the ability of an individual to solve what for him is a new problem. A problem must be solved, and it must be new. In the relative newness of the problem for each individual will reside its relative difficulty. The more difficult the problem the greater originality will be required for its solution. A given test may present no difficulties at all, for the way to solve the problem may already have been learned. On the other hand, the test may provide a problem too far above or otherwise too remote from the individual's performance level. A problem which is new may consequently not be a problem at all, as if we should employ a problem in algebra to test a person who does not know algebra, or should test an animal with a puzzle box which provides conditions for which his performance level is not at all adjusted. We can not test the intelligence of a horse by requiring it to climb trees. The ability to solve a new problem is invention. It is a creative act. The invention scale measures the degree of originality displayed in producing a required result.

Invention may be limited to a single field, or be manifested in many fields. Whenever intelligence is tested, it can be tested in only one field at a time, in a problem of arithmetic, let us say, or in business, or in writing a poem, or in delivering an address. General intelligence cannot be tested. It may be inferred from the particular resource tested, or from the variety of invention displayed in solving a number of problems. The generalness of intelligence is measured by the number of resources through which the individual manifests his invention. The grade of intelligence, therefore, is not to be measured on a single scale. We cannot call anyone intelligent whose invention is limited to a single resource. The scale which measures the generalness of intelligence or its range of distribution I call the resource scale. A line representing intelligence differences increasing from lower to higher intelligence will be determined by two coefficients, the one on a scale of invention grades, and the other on a scale of resource grades.

Men of great intelligence are not distinguished from men of small intelligence by possessing more or less of a single unit character, *i. e.* intelligence, but by virtue of the fact that their performances indicate a high degree of invention combined with a high degree of resourcefulness. These scales have been in practical use for a long time. When Mr. Gosse inquires whether America has produced a poet equal to the twelve greatest English poets, he decides that Edgar Allan Poe alone has a claim to this rank, but he finally excludes him on the ground "that his song has but one motive, sorrow for the irrecoverable dead." Nevertheless he admits that within the range of this one motive Poe's invention is creative genius of the first rank. Aristotle, Plato, Leonardo da Vinci, Goethe, are examples of an intelligence which ranks high, both in invention and resourcefulness.

There are two scales for grading proficiency: (1) the efficiency scale; (2) the operation scale.

Mr. Courtis has contributed results of great value to the scientific treatment of efficiency, because he has so clearly distinguished between the efficiency of an elementary operation in arithmetic, such as addition, subtraction, multiplication, and division, and the number of operations which are involved in solving problems. He shows us that a child may have a high grade of efficiency in addition but a low grade of efficiency in subtraction. The proficiency of the pupil in arithmetic rests upon his knowing an adequate number of operations and having acquired an adequate efficiency in each operation. He suggests that an operation may be made too efficient, for the number of operations will decrease, becoming ultimately less than adequate, if an effort is made to acquire an excessive, *i. e.* more than adequate, grade of efficiency in any one operation. Efficiency is a scientific term, and should be reserved in scientific discussion for a single use. Efficiency in arithmetic is to be measured in terms of the accuracy and speed with which each specific and component operation is carried on. The great problem in education, therefore, is not merely to increase the grade of efficiency of the pupils and of the school system, but also to increase the number of efficiencies. We should grade efficiency on a single scale, the scale of efficiency, and distinguish this from every other scale, especially the operation scale. If we wish to grade individuals with respect to efficiency combined with the number of operations, we need a separate term for this complex, for which I propose the word *proficiency*. It is already in common usage, and science should attempt to be at least as discriminating as the man in the street. Training schools give certificates of proficiency. I do not happen to know of any training school which gives a certificate of efficiency.

When I restrict the term *efficiency* to a single phase or element of an operation, I do not mean that efficiency is unimportant, but that invention, and resourcefulness, and the number of operations, are also important, and in some cases may be even more important than efficiency. Which may happen to be *most* important for an individual or nation to acquire will depend upon the circumstances and conditions of the moment. Until I have looked into the matter I cannot tell whether it would be more important for me to develop efficiency in a particular student or to extend the number of his operations, to strive to encourage the development of creative originality or to add to the number of his possible resources. The nations are struggling blindly forward. What may be most important for the development of each nation—to strive for efficiency, or to encourage invention,—who can tell? I only know that for science the immediate task is to study and measure efficiency. Science must begin with elementary processes. It must learn how to measure by measuring first what *can* be measured. Efficiency may be measured with some precision. Intelligence grades and performance levels can only be approximately estimated.

To one who has followed my analysis with understanding, it will be evident that most so-called intelligence tests are not tests of intelligence at all. Some of them are tests of efficiency, while others afford data for establishing a differential diagnosis with respect to the species or the age level, the deficiency or the insanity level, or the education level. No one has devised as yet a satisfactory test of intelligence. Intelligence differences are based upon estimates, which are for the most part as crude as popular estimates of civilization level.*

APPLICATION.

Dr. Eliot speaks with admiration of the "wonderful efficiency" of the Germans. They have conceived and carried forward a policy in government, industry, and military organization, whose aim has been the acquisition of efficiency in a large number of operations. Have they neglected to include all the essential operations? "If we include in the definition of military efficiency the management of supporting industries," as well as other operations enumerated by him, the outcome of the war—victory for the Allies—will, according to Dr. Eliot, demonstrate that "German efficiency" is inferior to "British and French efficiency." Why not admit the Germans are more efficient whether they win or lose? If Dr. Eliot means that victory for the Allies will prove that the Germans have

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* **SUMMARY.**—The differential diagnosis of intelligence requires twelve performance scales for grading and levelling individuals and groups:

GRADES

Intelligence	1. The invention scale
	2. The resource scale
Proficiency	3. The efficiency scale
	4. The operation scale

LEVELS

Growth....	5. The species scale
	6. The age scale
Sex........	7. The masculinity scale
	8. The femininity scale
Culture....	9. The civilization scale
	10. The education scale
Normality .	11. The deficiency scale (*or* the sufficiency scale)
	12. The insanity scale (*or* the equilibrium scale)

neglected to acquire efficiency in some essential operations, he would have clarified his argument if he had used some term like *proficiency* to indicate the combination of efficiency with the number of operations concerned. The outcome of the war may prove German proficiency inferior to British and French proficiency, but it cannot show Germany's efficiency to be inferior to what it really is. It may indeed be questioned whether the Germans have not developed efficiency beyond the point where it has maximum effectiveness.

If grades of efficiency can be measured on an efficiency scale, then the terms *higher* and *lower* should be restricted to mean relative position on this scale. Greater care in the use of these terms would remove a possible source of misunderstanding,—as when in his final paragraph Dr. Eliot concludes that for the "highest efficiency" both discipline and co-operation should be consented to in liberty. We discover from other portions of Dr. Eliot's discussion that he does in fact believe the Germans have omitted some essential operations from the total number of operations in which they have already acquired efficiency. Throughout the discussion, however, he confuses higher and lower, which indicate relative grades on the efficiency scale, with greater and less *importance*, which refer to facts and conditions other than mere efficiency. Efficiency is not the only desideratum for the successful ventures of a nation or individual. To arrive at a sound conclusion as to whether one operation is more important than another involves issues of fact and theory, which I can barely touch upon in this article.

We are apt to consider that operations are more important when they are complex than when they are simple or elementary. Take for example, arithmetic. Everyone will admit that the child who can add or subtract with a satisfactory efficiency has taken only the first step toward learning how to employ arithmetic in his daily life. He must next learn how to use these elementary operations in solving problems, employing for the purpose not only his acquired proficiency in arithmetic but also the reasoning faculty. In time it may be possible for psychology to analyze the complex processes of reasoning into simple operations, and thus place us in a position to measure their efficiency. At the present moment, however, a child's efficiency and reasoning cannot be measured so as to be compared on equal terms with his efficiency in the elementary operations. We must be able to do this before we can arrive at a precise estimate of the relative importance of reasoning and ciphering as elements in an education.

Another difficulty in estimating relative importance arises from lack of agreement as to the purpose or aim of a process, such for example, as the educational development of an individual or the progress of a race or nation. The value, and hence the importance, of an operation, is determined with reference to the conceived end or object of the total process. We often raise the question whether vision or audition is the more important sense. This question can be debated because vision and audition are of nearly equal complexity, and the purposes which these two senses serve are sufficiently alike to allow us to estimate their relative value. When, however, we ask which is the more important, the sense of vision or the sense of hunger, we have asked a question very difficult to answer, because vision is a complex of many different processes and hunger is an elementary sensation. When we inquire, to what end?—the difficulty is increased, because vision would seem to have greater value than hunger in our daily affairs, and yet as a matter of fact children born blind are easily reared to a fairly normal adult age, while children born without the sense of hunger would probably die in infancy. For these and other reasons, I think that questions of relative importance will remain for a long time matters of opinion rather than problems in scientific measurement.

Dr. Eliot's "highest efficiency," by which he means the efficiency of the more complex and socially important operations, rests upon intelligence, will, and moral purpose. Thus he considers a volunteer soldier more effective than a conscript, "because he has more personal initiative, more power of independent action, more sense of individual responsibility." "Personal initiative" is will. "Independent action" is a product of intelligence and will. "Individual responsibility" is a moral quality. The part which intelligence plays in developing proficiency concerns my present discussion more directly than the will or differences in moral quality. In Dr. Eliot's estimation intelligence is a "power in free institutions which leads to efficiency." "Germany," he says, "has adopted, adapted, and used with great skill all the inventions of the free nations." The German has seen that applied science makes for efficiency, and he has taken and used whatever he found wherever he found it. He has therefore developed efficiency in a large number of important operations, displaying thereby his "will to efficiency," and that modicum of intelligence which is necessary for gaining information, and for adopting and adapting methods. "Under free governments," however, and "in communities which have a fair amount of social mobility, the rare men are surer to come forward into vigorous action—the men who are *competent*, not only to invent or imagine the thing or the method that is next wanted, but to put their inventions into practical form and to make them useful in actual industries of their nations and the world." The issue with respect to intelligence is clearly and justly presented by Dr. Eliot, but when he goes on to assert that free institutions may also be expected to develop greater efficiency in industry and in governmental administration than autocratic governments, in my opinion he seeks to prove too much. Let us give the German nation its due, and grant the German more efficiency in a larger number of operations and a greater will to efficiency. We come then to Dr. Eliot's real argument, which is that autocratic nations are neither so inventive nor so resourceful as the freer nations. The development of individuals and nations, and I may add of science also, proceeds along two entirely different paths. One is the road to greater efficiency in an ever larger number of operations. The other leads to greater productive originality in an ever expanding field of resources. If the two paths are conceived to be parallel like the tracks of a railroad, we shall make the most progress under ordinary conditions by keeping on both tracks. An invention, or a new idea, a new hypothesis or discovery in science, however, may suddenly make all the old operations and their efficiencies unnecessary. The man who cut the Gordian knot made efficiency in untying knots superfluous. The submarine may send the superefficient dreadnought to the scrap heap. At moments when new* inventions are being offered, our very efficiencies may make us less effective. For example, psychology as a science is just now at this stage of development. The theories and methods which underlie my treatment of the subject matter of this article, and which are leading many to define psychology as a science of behavior, find some efficient psychologists unable to adjust themselves to these inventions. Their very efficiency holds them fast to the old operations and unfortunately empowers them to block the progress of the science, placed as many of them are at points of vantage in institutions of learning. Our estimate of the relative merits of scientific men changes as time enables us better to distinguish the relative value of efficiencies and inventions. At the moment, Wundt is justly acknowledged to be the greatest living psychologist. He belongs to the new school, and yet he was trained in the old; his monumental work is characterized more by persevering efficiency than by creative originality. He has employed many resources and shown the highest proficiency, but seldom in his work do we see the invention which leaps up to us from every page of William James. In Fechner, the Germans have produced a scientific intelligence of the first rank in psychology. The influence of Fechner's invention upon the science already transcends the influence of Wundt, whose greatness lies in the skill with which he has elaborated and diffused the ideas of Fechner and other men. Darwin and Galton have done more to determine the character of modern psychology than Helmholtz.

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* *New* here means new for the world. An invention is, by definition, always new with reference to the individual.

From many fields of art and science Dr. Eliot gathers the data from which he justly concludes that the British and French exceed the Germans in creative originality. I agree also with Dr. Eliot's opinion that this more productive and resourceful intelligence of the British and French is due to greater political freedom and greater freedom in education. I cannot, however, believe that it is Germany's very efficiency in education, "which has prevented the last two generations of Germans from knowing anything about freedom." Heine said the French loved liberty like a mistress, the English loved her like a wife, but the Germans, like a grandmother. Even though Germans have not cared for freedom, we need not follow Dr. Eliot in denying them nearly all of the elements of national greatness. The Germans recognize the value of efficiency in all individual and collective activities, and seek to acquire it through discipline. If efficiency is worth while, then discipline in education, in industry, and in social life, is worth while. So far as efficiency is concerned, it probably makes no difference whether discipline originates from without or from within. Intelligence, however, does not come from without. It is a congenital endowment of the individual or race. I cannot make my students more intelligent; I can only present my subject in a manner calculated to exercise the intelligence of which they are possessed. On the other hand, I may present my material in a way which will restrict the free play of their intelligence in invention. By insisting too much upon external discipline, training in method, and the acquisition of information, the conditions may be provided—perhaps are provided in school, high school, and college—which eventuate in the atrophy of intelligence through disuse. We cannot give a child eye-sight if he is blind, but we can destroy his vision if he has it.

"A man will develop greater mental capacity and greater force with freedom than without," says Dr. Eliot. If he means by "greater mental capacity," greater intelligence, I can agree with him; but if he means by "greater mental capacity," greater efficiency in a larger number of operations, I cannot agree with him. A measure of freedom is a necessary condition for the full exercise of intelligence, and I believe with Dr. Elliot that intelligence may be expected to develop both resources and efficiencies.

Whether, as a matter of fact, intelligence or external discipline will develop the larger number of resources and efficiencies, can only be determined after an adequate test. The least known element in Dr. Eliot's problem is will. The Germans recognize the supreme importance of will. They even think the "will to victory" will bring victory. They may be asking too much of the "will to victory," but certainly the "will to efficiency" will bring efficiency, and that, too, without calling for a high grade of intelligence. I am not prepared to analyze the will as I have attempted to analyze intelligence, but we can at least distinguish two contrasting modes of developing will through discipline: the one is freedom, the other is constraint. The British and French cry for individual and collective freedom; the Germans demand constraint. The antagonistic forces which may be employed to develop will, are not freedom and discipline, but freedom and constraint, for the proximate object of all training of the will is *self*-discipline. It may be secured by constraint from without, as when we compel the obedience of a child and train him to modes of behavior which he then adheres to, as a matter either of habit or of choice. On the other hand, if we are wise, we permit a certain measure of freedom even to children, for the child then learns from his successes and mistakes to choose the right course of conduct for himself. An equally well-disciplined school or home may be the product of either the discipline of constraint or the discipline of freedom. The problem of military or social discipline is therefore a universal problem in the development of will. Both freedom and constraint appear to be neccessary to develop the individual's self-discipline. The child who has not been taught obedience through the exercise of sufficient constraint, is apt as an adolescent or adult to display his liberty in the form of license. Our relatively undisciplined but free cities are an offense to the Germans. In both German and Anglo-Saxon communities the individual is put under some measure of constraint by the "collective will," and both communities are in a measure free. The German has displayed his freedom once and for all by agreeing to submit to a large measure of constraint, enforced by the power of the State. The Anglo-Saxon likes to be free to decide "on the spot" whether the "collective will" or his own will shall control his action. The German's self-discipline causes him to obey without question the posted order, "Keep off the grass." Long ago he made his choice with respect to that order and others of like nature. The Anglo-Saxon considers each time the situation arises, whether his desire to walk on that particular plot of grass or his appreciation of the reasonableness of the mandate of the "collective will" shall determine his choice of action. In view of the diverse development of constitutional government in England and in Germany, the objection may be offered that a large number of Germans, perhaps even a majority, have never had the opportunity to decide whether to accept or reject the collective constraint. It must be admitted, I think, that there is less political freedom, as well as less individual liberty, in Germany than in England. The development of political freedom in Germany abruptly terminated with the success of the greatest modern exponent of autocratic ideals, Bismarck. Nevertheless, in the light of the apparently unanimous opinion of the Germans on the justice of the war and on the value of their military organization, it would be hazardous to assert that the State Socialism of Germany, with its emphasis upon the discipline of constraint in school, army, and social life, has not been accepted as a matter of choice by the German people.

Questions of relative value are now apparently to be settled by the test of war. Whether the Germans win or not, they have already shown the value of efficiency and constraint. If the Allies win, it will prove that we may still rely upon intelligence and freedom to develop efficiency when it is needed. Whether or not Dr. Eliot is right in maintaining "there is a power in free institutions which leads to efficiency," certainly it has been demonstrated that there is power in at least one *autocratic* institution which has led to efficiency. Which is really the greater power, the war itself must decide. I hope that Dr. Eliot is right in thinking that proficiency, even in war, may be brought to a higher condition in a republic than in an autocratic government, for I like intelligence and freedom more than I like efficiency and constraint. Unfortunately for my peace of mind, the progress of the war has already shown how dangerous it may be to over-estimate the value of intelligence and freedom, to under-estimate the value of efficiency and constraint. I prefer intelligence and freedom, especially for myself, but I appreciate the value of efficiency and constraint, especially for others. Nevertheless, I do not want to see intelligence and freedom compelled to accept the yoke of efficiency and constraint. I appreciate, and even admire, the efficiency of the ant and the bee, but I am reluctant to take these insect communities as a model of organization and co-operation for human society.

Intelligence and proficiency, freedom and constraint, are not the only factors of competency. They are the general expression of particular mental capacities and traits, which constitute the congenital endowment of the individual. Thus, as I have already pointed out, articulate language is a congenital capacity of every normal human being, which he uses intelligently or proficiently as the case may be. When a capacity is present in more than average amount, it is called a talent. Thus we speak of a talent for music, and rightly call the Germans more musical than the Anglo-Saxons. When a trait is excessively developed, it may seriously interfere with the individual's progress or success. It is then called a defect. Thus conscientiousness, or curiosity, or obstinacy, which have social and educational value, act, when excessive, as defects to retard progress and handicap success. If a capacity, ordinarily present in the human being, either does not exist in an individual, or is present in a very small amount, this constitutes a defect. Thus tone-deafness, or color-blindness, or insensibility to pain, is a defect. A mental trait which makes for progress and success, I call an asset. The total mental capacity of an individual, then, is the *algebraic sum of his assets and defects.*

The competency of an individual or nation is a complex of many elements. It includes intelligence, which we measure in terms of invention and resource; proficiency, measured in terms of efficiency and the number of operations; the disciplined will; and finally the algebraic sum of multifarious assets and defects. In this complex, the variables I have had under consideration are invention, efficiency, and the discipline of freedom or constraint. The British and French, I conclude, have more invention, less efficiency, and more of freedom than constraint. The Germans have less invention, more efficiency, and more of constraint than freedom. Relative competency will appear only when the competition is over and we know the result. The lessons we may then draw for the guidance of nations and individuals will depend in large part upon the soundness of our analyses and interpretations. Psychology will contribute not only to the analysis and interpretation, but also to the exact measurement of efficiency and such other factors as may prove to be measurable.

The relative value of mental traits, however, can never be established by psychological investigation alone, and for an indefinite period we may expect the determination of the relative value of different mental qualities to remain mere expressions of opinion and more or less at the hazard of fortune. What we shall consider an asset, and what a defect, necessarily depends upon the end or purpose we have in view. Obstinacy in the mule is a defect from the man's point of view, but an asset from the mule's if it prevents his being overworked. Obstinacy in a child, parents usually consider a defect, but it is one of the means whereby the child preserves his personality from being too much affected by external constraint. Success in war may not reveal but obscure the relative value of qualities like intelligence and love of freedom. The Germans may have a greater talent for war than the English or French, and the value of this asset may be enhanced by another asset—the determination to drive forward to success in war, regardless of the opinions and sympathies of others. What are virtues in time of peace may play the rôle of defects in war, retarding progress and handicapping success. So thought the German who announced as a general proposition that "necessity knows no law". He forgot that general principles which appear to admit of no exceptions are dangerous, for the end may indeed justify the means, but only in so far as "a very good end" may justify some "doubtful means". For example, it may perhaps be open to debate whether the Germans were justified in invading Belgium, in torpedoing merchant vessels of the enemy, and in using poisonous gases; but could they justify, even to themselves, an attempt to poison wells, to organize assassination, or to disseminate disease germs in an enemy's country? Moreover, war is only a single incident in a nation's history, a single element of her civilization. No one can predict how much Germany will eventually lose and England gain, in the estimation of the world, because of a different appreciation of the inviolability of a contract. I think we may assume that established moral principles are those which the world has found by experience to be assets. For the moment, particular moral principles may act as defects to retard progress and handicap success, but the individual or nation who will not abide by accepted principles of law and morals must beware lest his ultimate loss exceed his immediate gain. With the progress of civilization, there have been established certain canons of national and international law, applying even to the conduct of war. To those who have thus raised the level of our civilization, the world owes a debt of gratitude, and none of them stands higher for intelligence and courage—such is the irony of history—than a German professor. Driven from the University of Leipzig because he sought to free education from sectarian influence and control, Thomasius, with the aid of the first king of Prussia, established at Halle an institution of learning so definitely committed to freedom of thought that a historian of education calls it "the first really modern university." Thomasius affirmed principles of law and morals which mitigated the horrors of religious wars in Europe, did away with prosecutions for witchcraft, and eliminated torture as a recognized procedure in law. In peril of his life, he wrote for the world's enlightenment: "I now saw that any being gifted by God with reason sins against the goodness of his Creator when he allows himself to be led, like an ox, by any other human being," and he adds, "I determined to shut my eyes against the brightness of human authority and to give no more thought to the question, *who* supports any doctrine,—but only to weigh fairly the grounds for and against it." These views were no more popular in Germany then than they are today. The University of Halle was called in derision the University of Hell. In speaking of his earlier work at Leipzig Thomasius says, "I was left alone in my lecture room with my Grotius,"—the founder of international law, and another advocate of freedom and fair dealing even in war. In the preface to his great work, *De Jure Belli ac Pacis,* Grotius pleads for humanity, "I saw in the whole Christian world a license of fighting at which even barbarous nations might blush. A declaration of war seemed to let loose every crime." It is said of Grotius that he "first awakened the conscience of governments to the Christian sense of international duty." The difference between the level of civilization before and after the appearance of Grotius' book is represented by the difference between the sacking of Magdeburg by Tilly, which horrified all Europe, and Richelieu's humanity toward the inhabitants of La Rochelle, which earned for him the title of "The Cardinal of Satan," bestowed by the astonished fanatics of his own church.

Many brave comrades of Grotius and Thomasius paid with their lives to create the beginnings of international law, and thus raise our civilization above the moral level of Machiavelli. To throw overboard what we have acquired of international morality, is the kind of reaction we diagnose as *primitivism,* meaning thereby a reversion in manners, customs, and principles to what is characteristic of a lower level of civilization. In modern society segregation is the treatment prescribed for those who think and act like Huns. Will an indignant world unite to segregate those whom our advancing civilization has come to recognize as a menace to the intelligence, freedom, and morality of nations?

A STUDY OF THE COMPARATIVE RETARDATION OF NEGRO AND WHITE PUPILS IN A PHILADELPHIA PUBLIC SCHOOL.

By Louise F. Perring, A.M.,
Philadelphia, Pa.

In determining the best education for the negro under the social conditions in which he finds himself, it would seem to be of first importance to discover, if possible, how he compares in his elementary education with the children of the white race. At present, except in a few instances, the negro children in the North are distributed among the white children in the regular public schools. In the South, while the negro is segregated, the courses of study are practically the same as those for the other race.

Two questions arise from this situation,—first, how does the negro boy or girl "fit in" to the course of study prescribed originally for the white child? Secondly, is it possible to devise a better course of instruction for the average negro boy or girl?—not merely a more practical one in the money-getting sense, but one that will fit better the usual type of negro mind.

Few studies have been made on this subject. Dr. Odum of the Bureau of Municipal Research has made some extensive comparative inquiries, the results of which have been published only in part in the *Annals* of the American Academy of Social and Political Science for November, 1913.

In a dissertation on "Retardation in the Elementary Schools of Philadelphia," Dr. Byron A. Phillips* calls attention to the increase in retardation in those schools and districts in which the negro forms a large percentage of the school population, and implies that most of this increase is chargeable to the negroes. Dr. George D. Strayer in a bulletin of the National Bureau of Education ("Age and Grade Census of School and Colleges," 1911, No. 5), tabulates a long list of cities, comparing the retardation and elimination of pupils in them. In only one city, Savannah, do the negro and white children appear in the list with a separate group of statistics. The probable effect of their presence is seen in the very high percentages of retardation in the schools of the "black belt" of the

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*The Psychological Clinic, Vol. VI, Nos. 3 and 4, May and June, 1912.

South. It is, of course, possible that this excessive retardation may be due to inefficient teaching, but such an assumption would not only be a gratuitious insult to the ability of our southern co-workers, but not at all borne out by the other facts that it has been possible to find.

The present investigation is undertaken as a contribution to the solution of the first question propounded above: how does the negro compare with the white child in taking up the white child's course of study? The studies were conducted at the Lynd School, Twelfth Street above Columbia Avenue, in the Seventh School District of Philadelphia. In this school the negroes are about 40 per cent of the school population. They are not segregated, but are taught in the same classes by the same teachers, use the same text-books and are subject to the same supervision and discipline as the other children.

While numbers are too small to enable us to do more than point to probable conclusions, yet the circumstances lend themselves to a fair comparison between the two races.

Let us consider in the first place the percentage of retardation based on the form used in the public schools of Philadelphia (Philadelphia Public Schools, form No. 50). The summary (table 1) shows that the percentage of retarded negro boys in the primary school is almost twice as great as the percentage of white boys, and that the difference is increased in the case of the girls. In the grammar grades the difference in the percentages is slightly less in the case of the girls; 57.1 for the negroes as against 29.8 for the whites.

The difference in the case of the white and colored grammar school boys is much less than any of the other groups owing to an abnormally large retardation among the white boys of the sixth year. Taking primary and grammar grades together the negroes still show twice as great a percentage of retardation as the white children with a slight advantage in favor of the negro boys as compared with the negro girls; a difference which will be further referred to in the conclusion of this paper.

In order to take the comparison one step further the amount of retardation of the retarded pupils in each group was also determined (table II). A consideration of this table shows that not only were a greater percentage of negro than of white pupils retarded, but that the average amount of retardation was greater in each group of negro children, the average amount of the excess being .45 years.

In this comparison, also, the negro girls show up less favorably than the negro boys. The average number of years of retardation

TABLE I. RETARDATION

GRADE	WHITE BOYS			NEGRO BOYS		
	Total	Retarded	Percentage	Total	Retarded	Percentage
8.............	16	4	25.0	2	1	50.0
7.............	13	5	38.5	0	0	....
6.............	15	8	53.3	7	4	57.1
5.............	33	12	36.3	8	4	50.0
Grammar.......	77	29	37.6	17	9	52.9
4.............	44	18	40.4	14	13	92.8
3.............	53	22	41.5	15	9	60.0
2.............	13	2	15.3	5	3	60.0
1.............	33	5	15.1	19	6	31.6
Primary........	143	47	32.8	53	31	58.4
Total.........	220	76	34.5	70	40	57.1

GRADE	WHITE GIRLS			NEGRO GIRLS		
	Total	Retarded	Percentage	Total	Retarded	Percentage
8.............	9	2	22.2	3	1	33.3
7.............	15	5	33.3	3	2	66.6
6.............	21	5	23.8	5	1	20.0
5.............	32	11	35.0	17	12	70.5
Grammar.......	77	23	29.8	28	16	57.1
4.............	39	20	51.3	13	11	84.6
3.............	35	12	34.2	34	23	67.6
2.............	11	1	9.0	9	4	44.4
1.............	35	2	5.7	21	8	38.0
Primary........	120	35	29.1	77	46	59.7
Total.........	197	58	29.4	105	62	59.0

GRADE	TOTAL WHITE			TOTAL NEGRO		
	Total	Retarded	Percentage	Total	Retarded	Percentage
8.............	25	6	24.0	5	2	40.0
7.............	28	10	35.7	3	2	66.6
6.............	36	13	33.0	12	5	41.6
5.............	65	23	35.3	25	16	64.0
Grammar.......	154	52	33.7	45	25	55.5
4.............	83	38	45.1	27	24	88.8
3.............	88	34	37.8	49	32	65.3
2.............	24	3	12.5	14	7	50.0
1.............	68	7	10.2	40	14	35.0
Primary........	263	82	31.1	130	77	59.2
Total.........	417	134	31.8	175	102	58.2

TABLE II. RETARDATION BY YEARS

GRADE	WHITE BOYS							NEGRO BOYS						
	Years Retarded							Years Retarded						
	1	2	3	4	5	6	7	1	2	3	4	5	6	7
8.........	2		2					1						
7.........	5													
6.........	4	4						2	2					
5.........	11			1					4					
Grammar..	22	4	2	1				3	6					
4.........	7	7	4					4	5	4				
3.........	13	5	3	1				4	3	2				
2.........		1			1			1		2				
1.........	5							4	1				1	
Primary...	25	13	7	1				13	9	8			1	
Total...	47	17	9	2	1			16	15	8			1	

GRADE	WHITE GIRLS							NEGRO GIRLS						
	Years Retarded							Years Retarded						
	1	2	3	4	5	6	7	1	2	3	4	5	6	7
8.........	2								1					
7.........	5							2						
6.........	4	1									1			
5.........	6	5						5	4	3				
Grammar..	17	6						7	5	3	1			
4.........	12	4	4					4	3	2	1			1
3.........	5	4	3					8	8	3	2	2		
2.........	1							1	1	2				
1.........	2							5	3					
Primary...	20	8	7					18	15	7	3	2		1
Total...	37	14	7					25	20	10	4	2		1

GRADE	TOTAL WHITE							TOTAL NEGRO						
	Years Retarded							Years Retarded						
	1	2	3	4	5	6	7	1	2	3	4	5	6	7
8.........	4		2					1	1					
7.........	10							2						
6.........	8	5						2	2		1			
5.........	17	5		1				5	8	3				
Grammar..	39	10	2	1				10	11	3	1			
4.........	19	11	8					8	8	6	1			1
3.........	18	9	6	1				12	11	5	2	2		
2.........	1	1			1			2	1	4				
1.........	7							9	4				1	
Primary...	45	21	14	1	1			31	24	15	3	2	1	
Total...	84	31	16	2	1			41	35	18	4	2	1	1

was for negro boys, all grades 1.9; for white boys, all grades 1.6. In the grammar grades the average retardation was for the negro boys, 1.5; for the whites, 1.3 years. In the primary grades the negro boys were retarded 2 years and the white boys 1.7 years.

The negro girls, taking all grades together, were retarded 2.1 years and the white girls 1.5 years. In the grammar grades the negro girls were retarded 1.9 years and the white girls 1.3 years, while in the primary grades the negro girls were retarded 2.1 years and the white girls 1.6 years.

Comparing the negro and the white children, both sexes together, we find that all negro children who were retarded were retarded an average of 2 years and all white children an average of 1.5 years. Of the retarded grammar school children the negroes were retarded 1.8 years and the whites 1.3 years. In the primary grades the corresponding figures are 2.1 for the negroes and 1.7 for the whites.

We often find that an excessive variation in one direction is balanced by a corresponding excessive variation in another. Is this excessive percentage and average amount of retardation balanced, even partially, by a corresponding acceleration of other pupils? No such variation appears. It was not possible to complete a table of acceleration, but it may be said that in only two groups, first and third year girls, was there any acceleration of negro children, and that only in the third year did such acceleration exceed that of white children. There were white children accelerated in eight out of sixteen sex-grade groups.

In seeking for a cause, other than a racial one, for these differences, the physical condition of the negro children was also looked into (table III).

TABLE III.

	NUMBER OF PUPILS		NUMBER OF DEFECTS		AVERAGE NUMBER DEFECTS PER PUPIL	
	White	Negro	White	Negro	White	Negro
Grammar........	154	45	79	23	.54	.51
Primary.........	263	130	183	52	.69	.40
Total..........	417	175	262	75	.62	.42

The medical inspector's record on the reverse of the school registration card was used as a basis for this comparison. It may be said that the results were surprising to the investigator, as there had been a preconceived opinion that the negroes were probably in a poorer physical condition than the white children, owing to their lower economic status in general, and the informality of their social arrangements.

The record shows, however, that the average number of recorded defects was less per pupil among the negroes than among the whites. Evidently on the score of physical health, the negro child is better off than the white child. It may, of course, be a case of "the survival of the fittest" among the negroes, but no comparative statistics of child mortality were available, so this question must be left open for further investigation. However, the fact and not its cause is the important thing.

A final point is the average age of the groups. A study of the facts (table IV) shows that without exception the negro children in any sex-grade group are from three months (first year girls) to one and one half years older (second year boys) than the corresponding group of white children. These are the figures for the pupils of the Lynd School. The investigation of Dr. Odum shows that the ages of the white and negro pupils throughout the city hold about the same relative position.*

TABLE IV.

GRADE	AVERAGE AGE						
	WHITE		NEGRO		DIFFERENCE		
	Boys	Girls	Boys	Girls	Boys	Girls	Both Sexes
8................	14.0	13.6	14.5	14.6	.5	1.0	.8
7................	13.0	13.0	13.4	13.6	.4	.6	.6
6................	12.3	11.9	12.7	12.5	.4	.6	.4
5................	11.2	10.9	11.9	12.2	.3	1.3	1.1
Grammar..........	12.3	11.9	12.5	12.6	.2	.7	.6
4................	10.3	10.6	11.7	12.0	1.4	1.4	1.4
3................	9.3	9.1	9.8	9.9	.5	.8	.6
2................	8.0	7.4	9.4	8.6	1.4	1.2	1.2
1................	6.5	6.8	7.4	7.0	.9	.2	.7
Primary..........	8.8	8.7	9.4	9.4	.6	.7	.7

It seems that we are justified in saying that the negro boy or girl is not getting what he ought to get in our schools, arranged as they are on a basis of European tradition. Whether the negro has or has not a less keen intellect than the Caucasian, is beside the point. His mind is evidently not like the mind of those with whom he is associated in the present investigation, which was as fair to him as possible. If we are going to give the negro eight years of education in not over ten years, it must be a different sort of an education from that which we try to instill into the minds of white children. To be sure, we only measurably succeed with the latter, and in so far as we fail, our methods and our materials are probably wrong; but they are probably twice as far wrong when we attempt to force them upon the negro.

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* *Annals* of Am. Acad., November, 1913, p. 189.

In conclusion, just a paragraph upon two points:

First, the sudden reduction of the age differences between the white and negro pupils of the sixth year and above, points to a difference in the rate of elimination between negro and white pupils that would bear investigation along comparative lines.

Secondly, the population of the special class for incorrigible and backward pupils in the neighborhood of the Lynd School is about 75 per cent negro, a much greater percentage than the neighborhood population would warrant.

Not only, therefore, do the negro children fit so badly into the system that they have to be excluded in unusual numbers from the ordinary classes, but it results that our comparisons have been made between a group of negro children from which a large percentage of delinquent pupils had been eliminated and a group of white children from which a very small percentage had been eliminated. Since the pupils sent to the special class are mostly boys in the fourth to sixth years, the negro boys in those grades make a much better showing in the investigation than if it were possible to consider all the pupils of each race, *i. e.* those in the special classes as well as those in the regular classes.

REVIEWS AND CRITICISM.

The Individual Delinquent. By William Healy, A.B., M.D. Boston: Little, Brown and Co., 1914. Pp. 862.

All who are interested in social and clinical psychology should welcome Dr. Healy's new book "The Individual Delinquent." Dr. Healy has devoted his energies for the last five years to making a laboratory story of the science of criminalistics, and this volume represents the results of his painstaking labors. In the spirit of scientific research he has made an intensive and individual study of each juvenile offender who has come to him through the Chicago Juvenile Court. His work has been influenced by neither prejudice nor theory. To those who have tried to group and to classify clinic cases his treatment of the delinquent brings a sense of relief, for he clearly shows that a hard and fast classification of delinquents is neither desirable nor possible. The delinquent is not a type. He may represent one of many types with one or more eccentricities of make-up which render him anti-social in certain respects. The same combination of factors would probably never be duplicated. Where Dr. Healy has found similar phenomena of behavior he has grouped together the individuals possessing them; but the *individual* has been uppermost, not a scheme of classification. His great plea is for the individual treatment of exceptional boys and girls. He puts this most emphatically before the lawyers and the judges. He advocates fair judgment based upon common sense, and a scientific treatment of the offender from the point of view of the delinquent and his reaction upon society, rather than from the character of the offence.

The volume consists of Book I and Book II. Book I gives a detailed account of the method of procedure followed in making the "psychogram," the cross-section of the adolescent offender, from the medical, social, and psychological viewpoints, in order to determine what the author calls "the essential fact"—that is, the personality of the examinee. From this psychogram are formulated the diagnosis, or analysis of the present situation, and the prognosis, or suggestion for treatment. Dr. Healy feels that the psychological viewpoint is essential, as from the "phenomena of mental life paths will be discovered to amendment of the moral situation." He found "this method of approach afforded the quickest and clearest understanding, the surest interpretation and by far the greatest promise of success." He holds that the relationship between conduct and mental life can best be perceived "in studying the immediate causation of social misdoing" and that the mental life stands to conduct as antecedent to consequent.

Chapter V contains a wealth of information as to details of equipment, and as to the procedure to be followed in conducting a psychological clinic which should aim "to ascertain from the actualities of life the basic factors of disordered social conduct." He emphasizes the need of professional training in medicine, in normal psychology, in actual experience in studying abnormal mental types, and in practical differential psychology as the personal equipment of the examiner. He puts the requirements high, but not too high when one considers the seriousness of the task placed before a clinical psychologist. The pages relating to records and to the schedule of data and their treatment are especially helpful.

Chapter VI deals with psychological methods of analyzing mental traits by means of mental tests, laying stress upon the significance of the emotional life frequently not discovered by the usual tests, but more often brought to light in the developmental and family history. His "plan of psychological inquiry" covers the methods of determining the subject's general and special abilities, both as independent of his formal education and as related to it, the presence of psychoses, of preponderating mental interests, or of any peculiar characteristics of emotional or moral life. No discussion of individual tests can be given here, but Dr. Healy's criticism of the Binet Tests as of limited value because of their failure to reveal special capabilities or aberrational tendencies, or to give a clue to the economic or social environment is especially timely. They "are of the utmost practical usefulness for children under ten years and for defectives who range as low as ten." "This kind of psychogram," he says, "tells little about the many other conditions of mental structure and function which should be known." They have not been found applicable to a cosmopolitan population, they do not satisfactorily measure general ability apart from schooling, they over-estimate language ability, and underestimate performance ability. Dr. Healy's own tests are fully described and well illustrated.

Book II on "Cases, Types, Causative Factors" gives a general survey of the causative factors of delinquency. Dr. Healy says, "We present our concrete data for the use of judges, officials of probation, parole or pardon departments, for institution officers, professional people, and all others who should have close scientific understanding of what makes for criminalistic proclivities." He cites many cases to illustrate his two aims (1) the protection of society, and (2) the improvement of the criminal. In the various chapters of this part he classifies the factors relating to delinquency into such groups as antenatal, natal, postnatal, physical, mental, and social, with remarkable clearness. He defines delinquency as "the product of a personal reaction to a given environment". He looks upon uncongeniality in the home, upon the mental imagery produced by pictures, upon craving for adventure, evil association, sexual indulgence, mental conflict and repression as dynamic in mental life and as strong factors in forming a criminalistic mental habit.

In the chapters on "Mental Defects" he stands for the recognition of (*a*) a group of feebleminded with special abilities either socially or nonsocially insignificant, (*b*) a group not feebleminded but with defects in special mental abilities and (*c*) a group characterized by mental dulness from physical conditions. He has adopted Dr. Adolf Meyer's term, "psychic constitutional inferiority" for a group "recognized by chronic abnormal social and mental reaction to the ordinary conditions of life, on the part of one who cannot be classified in any of the groups of the insanities, neuroses, or of the mental defectives."

To psychologists, jurists, and social workers, the discussion of the so-called "moral imbecile" is especially interesting. The author asserts that although he has searched industriously, he has not yet found a single case in which the basic trouble was not mental deficiency or some form of aberration, or in which the individual was not a victim of environmental conditions, or of some sort of mental conflict, and therefore assignable to some other definite class.

Throughout both books he urges the public and the courts to consider the mental status in determining the disposition and treatment of offenders even while making the individual case serve as a warning. He holds that defective self-control is no excuse for legal freedom. He heartily endorses probation, parole, and suspension of fine or sentence, and the development of constructive measures, to prevent repetition of the act by upbuilding the powers of inhibition.

ELEANOR LARRABEE LATTIMORE.

NEWS AND COMMENT.

Education of Deaf Children under School Age.

The Volta Bureau of Washington, D. C., makes the announcement that anyone interested in a little deaf child can obtain free literature explaining approved methods of training deaf children from infancy to school age by writing to The Volta Bureau for the Increase and Diffusion of Knowledge Relating to the Deaf, 1601 Thirty-fifth Street, N. W., Washington, D. C. This literature relates only to the training of little deaf children; not to medical treatment nor to the deafness that comes in later life. Age of child and other details are welcomed.

Making New York's Kindergartens Inefficient.

To save money it is proposed that one kindergartner with the assistance of a substitute, shall teach a class of not more than fifty children in the morning, and another class of similar size in the afternoon, one hour to be allowed for a noon intermission. This device is calculated to promote both educational and financial inefficiency. It is a waste of money to spend a small sum to do a piece of work very badly or not at all, when a larger sum would really accomplish the desired result.

It is also proposed that kindergarten teachers shall visit the homes of kindergarten children and conduct mothers' meetings. This regulation will make for efficiency. The kindergartner is an individual or clinical teacher, and the more this fact is emphasized in school administration, as for example in the requirement in New Orleans that kindergartners shall give individual instruction to the backward pupils of the grades, the better it will be for the future of this most important branch of the school system.

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CLASSIFICATION OF FIFTY BACKWARD AND FEEBLEMINDED SCHOOL CHILDREN.

BY J. HAROLD WILLIAMS,

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During the past year, assistance from the Buckel Foundation Laboratory has been asked by superintendents and principals in several cities in California in classifying school pupils, with a view to the establishment of special classes for backward and defective children who seem to profit little from the regular class room instruction. This brief study will include fifty of the children who have been examined for this purpose, and who are taken as representative of the cases concerning which inquiries are made.

The cities from which these cases are taken are Fresno, San Jose, Redwood City, and Palo Alto. In the first three cities named there are no special classes, but steps are being taken toward their establishment. In Palo Alto there is a well organized "ungraded room" in which effort is being made to provide proper instruction for subnormal and otherwise exceptional children.

The children selected for examination and classification represent nearly all degrees of variability. The teachers were asked to select those who were backward in their school work, either because of apparent mental incapability or unwillingness to do the work of the regular class. In many cases children of superior ability have been examined, and from these certain interesting and important facts have been obtained. This particular study, however, will deal only with those considered by their teachers backward or subnormal.

The examinations were made by the use of the Stanford Revision of the Binet-Simon Measuring Scale of Intelligence, by Dr. Lewis M. Terman, of Stanford University.* A particular advantage of this revision is the careful standardization of tests extending several years beyond the original 13-year level. This permits of more accurate grading of the older pupils, who often present some of the greatest difficulties to the teacher.

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* This revision is soon to be published.

Table I shows the data under consideration. It will be noted that these fifty children range in age from 7 to 16 years, and in school from the receiving class to grade seven.

The distribution of chronological and mental ages is shown in chart I. The median chronological age is 10 years; the median mental age 8 years. At the ages represented, a general retardation of two years, or one-fifth, is serious. The proportion of mentally defective children in such a group will necessarily be large. It is further significant that although the highest age is 16 years, the highest mental age is 13. A proportionate difference is shown at the lower end of the distribution curve.

The intelligence quotients of the group range from .57 to 1.17, giving a maximum range of 60 per cent. The distribution is as follows:

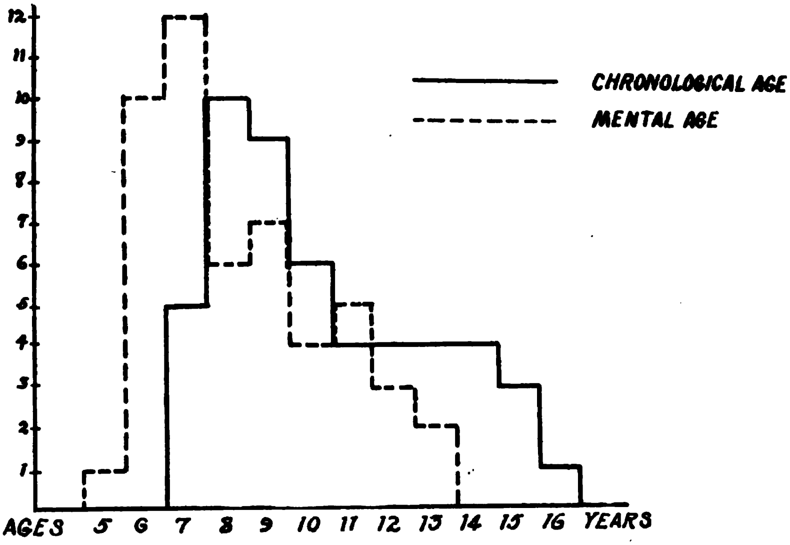

CHART I. DISTRIBUTION OF CHRONOLOGICAL AND MENTAL AGES.

.50 to .60	2 cases
.61 to .70	9 cases
.71 to .80	13 cases
.81 to .90	13 cases
.91 to 1.00	9 cases
Above 1.00	4 cases

The median intelligence quotient is .81.

No.	Name of pupil	Actual Age		Mental Age		Intelligence quotient	Grade in school	School retardation	Classification
		Yrs.	Mos.	Yrs.	Mos.				
1	William B.	11	0	11	0	1.00	5	0	Normal
2	Ivan E.	14	2	9	8	.69	4	4	Feebleminded
3	Jessie C.	9	0	5	6	.61	1	2	Feebleminded
4	Henry B.	11	1	9	0	.81	4	1	Borderline
5	Guy F.	9	8	7	0	.65	3	0	Feebleminded
6	Mary K.	9	6	9	6	1.00	4	0	Normal
7	Fernando F.	10	0	7	0	.70	3	1	Feebleminded
8	Matilda E.	10	4	10	4	1.00	5	0	Normal
9	Jennie V.	7	8	6	8	.87	2	0	Dull Normal
10	Elbert W.	9	0	7	0	.77	1	2	Borderline
11	Ellis G.	12	9	10	0	.79	6	0	Borderline
12	Augusta C.	9	10	9	10	1.00	2	1	Normal
13	Daniel F.	14	4	13	6	.94	6	2	Normal
14	Basil J.	7	0	7	2	1.02	2	0	Normal
15	Conrad C.	8	0	9	8	1.17	2	0	Normal
16	Samuel F.	7	0	7	6	1.07	Rec.	1	Normal
17	Amelia L.	9	10	6	2	.57	2	2	Feebleminded
18	Grace D.	8	2	6	0	.74	2	0	Feebleminded
19	Frank P.	11	5	7	4	.64	2	3	Feebleminded
20	Owen M.	7	11	7	6	.94	2	0	Normal
21	James S.	8	10	6	1	.69	2	1	Feebleminded
22	Lydia R.	8	4	6	4	.76	2	0	Borderline
23	Eugene H.	13	1	8	8	.62	3	4	Feebleminded
24	Viola T.	7	8	6	4	.82	2	0	Dull Normal
25	Herman A.	8	3	6	4	.77	2	0	Borderline
26	Ernest O.	8	7	6	0	.70	2	0	Feebleminded
27	Hugh F.	10	1	6	6	.64	2	2	Feebleminded
28	Roland S.	12	1	8	8	.72	4	2	Feebleminded
29	Amy V.	8	10	6	5	.71	2	0	Feebleminded
30	May D.	9	5	7	8	.82	2	1	Dull Normal
31	Ralph N.	8	9	7	5	.81	2	0	Dull Normal
32	Vincent L.	13	1	11	7	.89	6	1	Dull Normal
33	Enoch B.	8	10	7	8	.87	2	1	Dull Normal
34	Thomas J.	13	11	12	0	.86	5	2	Dull Normal
35	Ruth W.	12	1	9	2	.76	4	2	Borderline
36	Arthur K.	9	0	8	10	.98	1	2	Normal
37	Eva F.	15	6	9	2	.59	5	4	Feebleminded
38	Austin K.	14	6	11	2	.77	4	4	Borderline
39	Walter E.	15	0	11	3	.75	7	1	Borderline
40	Julia D.	15	11	11	10	.75	7	2	Borderline
41	Rudolf Z.	15	5	12	6	.81	7	2	Borderline
42	Andrew N.	14	1	13	6	.96	7	1	Normal
43	Homer B.	10	2	11	0	1.08	4	2	Normal
44	Martha R.	8	6	7	2	.84	2	0	Dull Normal
45	Robert W.	9	1	8	10	.97	*	*	Normal
46	Flora E.	9	10	7	7	.74	*	*	Feebleminded
47	Herbert S.	11	4	9	7	.85	*	*	Dull Normal
48	Harry A.	10	10	9	1	.84	*	*	Dull Normal
49	Charles C.	13	1	10	8	.81	*	*	Dull Normal
50	Emily V.	12	4	9	2	.74	*	*	Feebleminded

* In ungraded room.

Perhaps a clearer way of indicating the great variability among these children is by grouping them, although somewhat arbitrarily, into the four groups which are commonly used in designating the grade of intelligence. In table I each child is classified according to this method. The percentages of the groups are as follows:

Feebleminded	32 per cent
Borderline	20 per cent
Dull normal	22 per cent
Normal or superior	26 per cent

These terms are in no way intended to describe "types" of children, as is too often done by teachers and even psychologists. As has already been stated, these divisions are arbitrary, and the grouping is made only for the sake of convenience in discussion. Some children might be as correctly placed in one group as in another. The important fact is the child's level of intelligence, or his variability from normal.

The feebleminded group here includes those whose present levels of intelligence indicate that in all probability they will never possess a mentality beyond that of the average child of twelve years. In all cases those so classified have intelligence quotients below .75; that is, the mental age is less than three-fourths that of the actual age. Sixteen children are included in this group, indicating that about one-third of those selected by their teachers as "backward" are actually feebleminded. The following are examples:

Ivan E.—(Not foreign.) Age 14. Mentality about 9½. Has reached grade 4 after six years in school. Is practically unable, his teacher says, to go farther. Seems stupid and inattentive. Cannot name the months, make change for simple amounts, or repeat six digits—all of these being tests in the ten-year group. Interpretation of the fable of the *Fox and the Crow:* "The fox wanted the meat and the crow didn't know how to sing." Responses to other tests indicate equally well that his stupidity is not due to his unwillingness to learn, but to mental incapability.

Jessie C.—Age 9. Mentality about 5½. Is in grade 1, and has never been promoted. Is of foreign parentage, but speaks English well. Can barely copy the square, and cannot copy the diamond at all. Does not know morning from afternoon, or the value of any of the coins, except the penny. Is clearly an institutional case, and should be removed from the regular class, where she has been kept in the same grade for three years.

Amelia L.—Age almost 10. Mentality slightly above 6. Has been promoted this year to grade 2, although barely able to do the work of the previous grade. Is one of the lowest grade cases in the school. Is very unlikely ever to possess the mentality of the ordinary child of ten years, Should by all means be placed in a special class, if institutional care is not possible.

Eugene H.—Age 13. Mentality about 8½. Is in the lower section of grade 3. Has been shifted around from one grade to another, and because of his normal appearance and physical development has been held unduly responsible for his inability to get along in school work. Has caused considerable annoyance and inconvenience among the teachers. Shows indications of a very unstable and low mentality, and neurasthenia. Is recommended for further psychological observation, and for immediate removal to a special room where he can receive individual attention. Is fond of manual work, and in this direction may lie the solution of some of the difficulty.

Eva F.—Age 15½ years. Mentality slightly above 9. Grade 5. Cannot make a sentence from three words, make rhymes, arrange the weights, or comprehend any of the absurdities. Has been in this grade for some time, and seems wholly incapable of much advancement. Has already been allowed to advance in school beyond the limits indicated by her present level of intelligence. This is probably due to her earnest, plodding nature. Presents no difficulty in discipline, and in this respect is one of the best pupils in the room. In an institution of the right sort Eva could doubtless be trained in many useful things which are denied her in the public school. It seems but little short of cruelty to permit her to memorize her lessons every day, only to forget them before the next. With this procedure, however, she is apparently contented.

Emily V.—Age 12. Mentality about 9. Is in the ungraded room, which she says she likes much better than the other rooms where it is so hard for her to learn. Is a large strong girl, and in good health. Her low grade of intelligence is indicated, among many other things, in her interpretation of fables. Some of her responses are as follows:—*Hercules and the Wagoner:* "Teaches you not to do it again." *The Fox and the Crow:* "Teaches you not to have meat in your mouth." *The Farmer and the Stork:* "Better look out where you're going." Emily is now learning basket making and plain sewing, and other work of a similar kind. Efforts to teach her arithmetic and reading beyond a small amount have hopelessly failed. The ungraded room has unquestionably saved her from complete discouragement, which in a child of her intelligence might have led to undesirable results.

Although many of the sixteen cases of which the foregoing are representative are in reality fit subjects for commitment to institutions, it is improbable that with the present inadequacy of provision in California this will be accomplished. At the very best the school will only be able to keep them in attendance until adolescence, when most of them will go out in the world to take part in the perpetuation of degenerate stock. Some will be laborers and ordinary working people, doing fairly well under close supervision, but subject to the many influences which prey upon weak mentality to produce delinquency and criminality. Proper institutional care or segregation for these few cases alone might be a direct saving to the state of several thousands of dollars.

The borderline group includes those whose mentality may reach a slightly higher limit of development than those who may be considered definitely feebleminded. While for many of this group institutional care would also be advisable, on the whole a level of intelligence is represented through which persons may be held more independently responsible than the former group. The borderline cases are a frequent source of annoyance and special difficulty because of their intermediate position between normality and feeblemindedness. A recent study of delinquents by the writer found about 25 per cent of 150 delinquent boys to belong to this grade of intelligence.

Elbert W.—Age 9. Mentality about 7. In grade 1, where he has been for three years. A quick, active little colored boy, whose antics and playfulness have given to many the erroneous impression of superior intelligence. May prove to be not greatly inferior among his own people, but it is absurd to expect of him the same mental development of which the normal children in his class are capable. Those with whom Elbert started to school are now two years beyond him, and it may be a positive detriment to him to continue his repetition of first grade work.

Herman A.—Age 8. Mentality about 6½. In grade 2. Is of foreign parentage, but speaks English well. No language difficulty which would interfere greatly with the determination of his intelligence-level. Slightly above the feebleminded group, but can be taught only with great difficulty. Cannot do the work of his grade. Should be in a special class.

Ruth W.—Age 12. Mentality about 9. In grade 4. Seems to have almost reached her limit in school subjects. Is willing and steady, and would probably learn many things of value to her if placed in a special class before her deficiency becomes relatively too great.

Rudolph Z.—Age 15½. Mentality about 12½. Has been automatically promoted to grade 7, with the hope that he would "learn better among the children of his own age." Is stupid, blunt, and shows even less willingness than capability to learn. Has been guilty of several acts of a delinquent nature. Is addicted to cigarettes and liquor, and has been drunk several times. In all probability will some day be sent to an institution for delinquents, which will be of more practical value to him than the public schools have been. The ordinary public school is almost powerless in such a case, and the bad influence which Rudolph has had upon the other boys in the school is sufficient moral reason for putting him in the care of the state.

The dull normal group includes those who are mentally backward, or merely "dull." Although there is much more which can legitimately be expected in the mental development of these cases than in those to which reference has already been made, there is reason to believe that much time has been wasted in the hope that many of such children could be made absolutely normal, or equal in intelligence to average children of their respective chronological ages. Children who exhibit the characteristics of this group will probably reach low adult intelligence, and for them industrial training and vocational guidance are of far greater importance than progress in the common school subjects. It is perhaps unnecessary to point out here the futility of continual punishment and "nagging" as a means of developing the intelligence of the children of this group, or of stimulating them much beyond their capability. If it is necessary, as is often the case, for such children to remain in the regular classes, only by individual attention and patient treatment can the teacher be of much assistance in their competition with the normal and superior children with whom they will be associated.

Jennie V.—Age 7½. Mentality about 6½. Is in grade 2. While she presents no particular retardation from the standpoint of age-grade distribution, yet the tests clearly indicate that she is not mentally equal to the children of her age. Probably she should not have been started in school at such an early age, although normal children would have no great difficulty under the same conditions. The fact that her parents can barely speak English is perhaps sufficient reason why she should be in the public school, but she is in need of the individual attention which can only be obtained in the special class.

Ralph N.—Age 8 years 9 months. Mentality about 7½. In grade 2. Another case where the special class could be of great assistance until the difficulties of language have been overcome. Likes manual work, and should be given an opportunity in this line. Will probably reach low adult intelligence.

Enoch B.—Age almost 9. Mentality about 7½. In grade 2. Should probably make better progress in the regular class than could be expected of most of those of this group. Is physically delicate, and is subject to several continuous ailments. Would pass for normal, by mere observation, among any group of school children, except for his disinclination to play with the others. Special attention would doubtless furnish him with much encouragement.

Thomas J.—(Colored). Age 14. Mentality about 12½. Has just been promoted to grade 6, as previous to this examination his intelligence has been greatly underestimated by his teachers. His mother is a capable and energetic woman, with relatively high social standing. Thomas, however, shows the racial characteristic of inattentiveness and lack of ambition. With his ambition aroused by the presentation of something of interest to him, which the principal of his school is attempting to bring about, we should expect him to become a useful citizen, and one of not greatly inferior intelligence.

The normal and superior group includes more than one-fourth of the children selected by their teachers as "backward." The fact that children of normal and even of superior intelligence should have been so classified is of great significance. It is not surprising that such children should often present some special difficulty in discipline or instruction; but we wonder if the teacher is not occasionally at fault in considering them "backward". In some cases there is no apparent retardation. Matilda E., for example, is in grade 5 at ten years of age. The difficulty may easily lie in the possibility that the teacher has failed to take note of the fact that Matilda is the youngest pupil in her room. Furthermore, Matilda is from a foreign home, and her parents do not speak English except when necessary.

William B.—Age 11. Grade 5. Is of foreign parentage, but has no difficulty with language. There is no apparent reason why he should be backward, unless most of the children in his room are of superior intelligence.

Mary K.—Age 9½. Grade 4. Tests exactly normal. Is somewhat nervous and shy, but should present no special difficulty. Is often ill, and this may account for her slight backwardness in school subjects. Is mentally equal to the average child of her age.

Basil J.—Age 7. Tests slightly above normal. Is "backward" because of mischievousness and incorrigibility. On one occasion the teacher was heard to say that she "would never promote such a hopeless case." Probably better results could be obtained by temporarily transfering this boy to a special class, where the ironclad promotion system does not prevent the teacher from exercising the patience and kindness which are so necessary in dealing with children of any degree of exceptionality.

Samuel F.—Age 7. Tests 7½. Has been in the receiving class for two years on account of his "inability to learn to read." There is no apparent reason why this should be in the case, if sufficient attention is actually given him. He has no defects of sight, hearing, or speech, and is said to be capable in every other way. Whatever the difficulty may be, individual teaching is apparently the only solution. It is probable that it may easily be overcome.

Robert W.—Age 9. In the ungraded room. Has been placed here to make up for school retardation due to absence while ill. Has done remarkably well, and will soon be ready for the regular class. Were it not for the ungraded room it is doubtful if this could have been so easily accomplished.

The school retardation in the three cities of this study having no special classes is shown in chart II. The dotted line represents

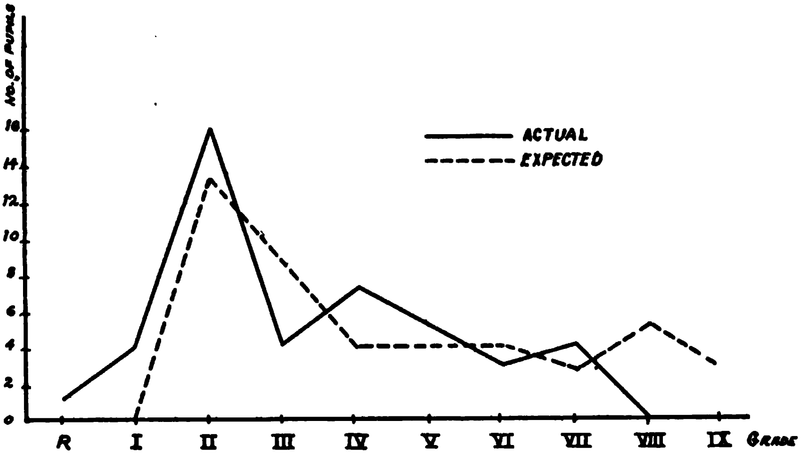

CHART II. GRADES REACHED, AND GRADES EXPECTED, ON THE BASIS OF ACTUAL AGE the distribution of the grades which we could normally expect the children of the ages given to have reached. The significant facts are that of 15 children who should have gone beyond grade 6, but 7 have succeeded in doing so; and that one-half of these are in or below grade 3, although the median age is 10 years. In all probability the prevalent system of automatic promotion by certain teachers, after the child has spent two or three years in one grade has resulted in many promotions beyond mental capability. If grading were based upon mental ages, the following distribution would result:

In grade 1	23 pupils
In grade 2	6 pupils
In grade 3	7 pupils
In grade 4	4 pupils
In grade 5	5 pupils
In grade 6	3 pupils
In grade 7	1 pupil
In grade 8	none

Thus, judged from the standpoint of intelligence-levels alone, less than one-half of these children are capable of work beyond grade 2. While there are probably many valid reasons why such a distribution is objectionable, yet the foregoing table is an indication that the present methods of grading and promoting defective and backward children are equally impractical. The ungraded room seems at present to be the best solution of this problem.

The following table summarizes the results by cities:

City	No. of pupils included	Median age	Median M. age	No. F. M.	No. who should be in special class
Fresno	13	10	9	4	9
San Jose	21	9	7	9	20
Redwood	8	14½	11	1	6
Palo Alto	8	10½	9	2	All are now in special class.

These figures are in no way indicative of the relative amount of feeblemindedness among the school children of these cities, as many more normal, superior, and backward children were examined in each school than have been referred to in this study. There is strong indication, however, that special classes for exceptional children are of urgent need in all of these communities.

SUMMARY AND CONCLUSIONS.

1. Fifty children in the public schools selected by their teachers because of backwardness were found to range in mentality from middle grade morons to superior normal; 32 per cent may reasonably be classified as feebleminded, 26 per cent as normal or superior, and the remaining number as belonging to the borderline or dull normal grades. The range of intelligence quotients is from .57 to 1.17.

2. Many children classified by their teachers as backward are subjects for institutions for defectives; many others should be in special or ungraded rooms; while still others could undoubtedly make better progress in the regular class if the teacher would but recognize the fact that they are mentally exceptional, and not responble for their inability to act and learn like average children.

3. So many difficulties are presented by the present system of grading and promotion that there is ample justification for the establishment of special classes for each of the following groups:

(*a*) Subnormal children.
(*b*) Incorrigible children.
(*c*) Children of superior intelligence.

All of the above forms of special classes have been established in various parts of the United States. While it is not likely that the average school will be able to obtain all three of these immediately, the time will undoubtedly come when these and other forms of special classes will constitute a necessary part of the equipment of every city school.

THE PRACTICAL APPLICATION OF PSYCHOLOGY IN SOCIAL SERVICE WORK.

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Wherever we undertake the task of ministering not only to the body but to the mind, our working basis must be psychology. In social work this psychology must be more particularly social psychology, for we are dealing with human beings as members of society. We are considering the physical welfare of individuals merely as a contributory factor to their social welfare. All social work, then, should be grounded on a social psychology which does not, of course, preclude the apparent necessity of the constant application of an individual psychology; for every human being is different from every other human being, in spite of the fact that there are a good many underlying principles which apply to whole classes of individuals. As Edward A. Ross puts it, "No two persons have just the same endowment. Looking at their heredity, we should expect people to be far more dissimilar and individual than we actually find them to be. The aligning power of association triumphs over diversity of temperament and experience. There ought to be as many religious creeds as there are human beings; but we find people ranged under a few great religions. It is the same in respect to dress, diet, pastimes, or moral ideas. The individuality each has received from the hand of nature is largely effaced, and we find people gathered into great planes of uniformity."

The task of the social worker, then, is to obtain as far as possible a sound knowledge of the inter-relations of mind and body. She works with a class of individuals who, as a whole, are likely to have a poor mental equipment and few social or educational opportunities. By virtue of her education, her professional training, and her social environment, she is in a position to act as guide to less fortunate individuals. It is undoubtedly true that, as education progresses superstition decreases in an individual or in a community. Once let an individual appreciate the difference between science and quackery, and his superstition begins to crumble away. One of the largest tasks of the social worker is to teach truths, and in hospital work—to cite one example—this often takes the form of teaching the superiority of a real medical science as against a system of patent medicines. The worker assumes this position of teacher as a result of her knowledge of the principles of hygiene, psychology, and sociology. Says Ross under the caption "How to become crank-proof," "Hygiene, psychology, and sociology, can ward off more folly than astronomy, physics, or geology. For body, mind, and society are storm-centers of faddism, the breeding grounds of manias. To be folly-proof here is to be fortified against nine-tenths of the higher foolishness. * * * The most desired things in the world (are)—immunity from disease, from sin, and from poverty."

Now, taking it for granted that social work should be based on a number of sciences, let us examine some of the principles of psychology, in which we are particularly interested. As I am most familiar with hospital social service work, my paper will discuss the principles underlying that particular branch, with the understanding, however, that these principles are more or less applicable to all types of social work.

To the hospital dispensaries and wards come those who are unable to pay for medical care. There are many with fair education, training, and social advantages. Others are below the poverty line and have never known life except as a struggle for sustenance. Success or failure is often entirely determined by the worker's knowledge and understanding of the various classes of people and of their habits of thought. You cannot approach one who has been used to the good things of life, who has not until the present known real want, who has had a fair education, in the same way you approach a chronically poverty-stricken person, to whom life is nothing more than three meals or less a day, and a bed on which to lie at night,—a person who through necessity has been forced to abandon all social or spiritual ideals, and demands merely a certain degree of bodily comfort.

The worker seldom needs to "draw out" this latter type of patient; rather is it better to suppress the oft-told tale of woe. A family consisting of such persons usually gives itself over to the social worker and expects to be helped or even entirely reinstated without any effort on its own part. It is too tired, too disheartened, too worn out with the struggle of life to make a fight any longer. In this case the simpler problems of proper hygienic home conditions, medical attention, sufficient and nourishing food, proper working conditions—so far as this is possible—for the bread-winners of the family, constitute in most cases all that can be done.

The mental attitude of a member of a family of this type is such that it is often detrimental to allow him to recite his woes at length. They increase in size, number, and intensity as the recital goes on. He should be held down as far as possible to facts, and should be discouraged from exaggerating his hardships or brooding over them.

Mary F. came to me four months ago. She was apathetic, only fairly intelligent, and ill. For twenty minutes I listened to a story of poverty and woe, but as conditions seemed to become worse and worse in Mary's mind as the story proceeded, I thought it well to stop the recital, and put Mary into the proper hands for investigation and home relief. A week later she returned, ready to give a second story of woe far worse than the first. For about two months this incident repeated itself, yet all that time the family was being given very definite relief, and much effort was being put forth in procuring work for the bread-winner. I found that it was really detrimental to Mary to allow her to recite her past woes, and that she left the hospital in much better condition if we could turn her thoughts towards definite ways in which she could work with us for a more hopeful future.

In the case of persons belonging to a family a few steps higher in the social scale, the problem of gaining their confidence is sometimes difficult. They have too much pride to wish to air their troubles, and too great fear of being misunderstood. With them, the utmost tact and care are needed, lest in her desire to help, the worker foil her own ends. In this connection the social worker will in all probability "lose her case" if she shows too much eagerness for information, as the patient is likely to think the worker inquisitive or possessed of some ulterior motive. In the majority of cases a sympathetic listener will win their confidence.

During the year a middle-aged woman, very nicely dressed, intelligent, and of good address, came to the hospital for treatment. She was told by the physician that she must have an eye operation, but before this could be done she should go to the country to get in good physical condition. The physician referred her to me for direction in regard to entering a suitable country home. This was all she asked. An application was made out for such a place, a sympathetic interest shown in her personal welfare, and an offer made to communicate to her physician any messages she might send while away. The interview was quite impersonal up to this point, at least enough so to show that the worker's attitude was an entirely disinterested one. No questions were asked the patient other than those necessary for filling out the blank, and those in connection with the condition of her eyes. When this had all been arranged, the woman made no motion to go but seemed to be struggling with some great doubt. Suddenly she began to pour out her troubles, stating that she was very anxious to enter the hospital directly from the convalescent home as she was most unhappy living with her son and his wife, the latter having been very unkind to her. It was with difficulty during this recital that she suppressed her tears. Then she seemed to come to herself with a start, exclaiming, "I don't know why I should be telling you all this!" The reason was perfectly clear. She was unburdening her heart to a person who could not possibly be interested in her for personal reasons; who did not know her relatives and friends, and who had shown herself sympathetic and capable of understanding the physical conditions. Of course the woman did not analyze this, but it was the natural reaction. After the woman had gone to the country, she wrote in detail about herself and her family, stating that she considered this the only frank thing to do since the worker had offered her help. It was then simple enough to get in touch with the various members of the family and help effectively in adjusting affairs. I feel sure that in this case and others of a similar nature, no help of any kind would have been received had the worker shown over-much interest and asked too many questions in regard to the personal history.

In another respect we might divide persons into two classes. One is the type of person who is likely to become very friendly on first acquaintance—many foreigners might be put in this class. A certain amount of aloofness must be maintained, as too much familiarity is often fatal to influence. No man is a prophet in his own country. This is why an outsider may, with little effort, often accomplish what a member of the family has unsuccessfully striven for years to bring about. On the other hand, we have the type who is very much afraid of being presumptuous, or asking too much. This type needs to be drawn out and offered friendship. He must be made to feel that the worker has an understanding of his feelings, an appreciation of the things he has experienced, and a sympathetic interest in his welfare.

Then comes the question of fitting the individual to his environment or fitting the environment to the individual. To put it briefly, in most normal cases, an attempt should be made to fit a man to his surroundings; while in abnormal cases, the environment should be made to fit the man. This latter is the wherefore of institutions for the insane, feebleminded, tubercular, etc. These institutions are dealing with persons who are physically or mentally abnormal, and they are organized to meet the requirements of the particular abnormalities involved.

Here too, comes in the question of the care of the convalescent. Frequently, because of his weakened condition, it would be a risk to allow the patient to return to bad or uncongenial surroundings. Under these circumstances we often send the patient away to some place particularly favorable to a return to health, as for instance, a country home for convalescents.

In the case of a patient who is fairly normal in mind and body and whose life is likely to be spent in one type of place, it is very necessary for his happiness that he fit himself as well as possible to his surroundings, make the most of them, and realize that he can find happiness there if he only goes about it in the right way. There are many families who, we feel certain, will always remain at some fixed level of society even though conditions fluctuate. In such cases it is unjust and harmful to encourage hopes which are far beyond their probable realization. It is better for the welfare of these persons to help them become accustomed to those conditions which they are likely to meet throughout life.

No psychology should overlook the part that the church and religion play in the life of human beings. When the social worker meets a person whose religion is a definite help and guide, it is very necessary that she have enough insight into character to realize the importance of such a person's religion in their life. The Protestant minister, the rabbi, the priest, may in many cases get a grip on a sorely perplexed soul where a layman may have no influence. Much seems doubtful until the priest has given his sanction; confession is balm to many souls—particularly true may this be of an adolescent who is in a very plastic state, yet in a confused and uncertain one. He needs someone in whom he has confidence to decide for him. The adolescent is likely to be deeply religious and this emotion should be directed into proper channels. The fact that it is through superstition rather than through a spiritual religion that a man may be guided by his minister, does not in the least affect the strength of the church's influence. In encountering superstition and ritual observance, much can be accomplished with tact and understanding.

Rachel Levy, for instance, who has been ill, cannot go to the country for convalescence on a specified day because it is a Jewish religious holiday. Traveling at such a time is not permitted. To insist that under the circumstances traveling cannot possibly be a sin, and that it is mere superstition to keep a religious holiday, will not in the least affect Rachel; but, to insist that Rachel's traveling is a necessity for her health, and not a pleasure, and that one does not sin in caring for one's health, lends an entirely different aspect to the matter.

A worker is likely to encounter many of these problems in direct connection with her hospital work. Take, for example, the adolescent boy who has been brought by his mother to the dispensary for nervous diseases because he is beginning to brood overmuch. His mother fears that he is abnormal. His own society is beginning to be far more pleasant to him than the society of others. He is just at a stage where he can be easily influenced, where he will pattern his conduct after that of some older person whom he admires. The companionship of some man may mean more to him than anything else. If the worker realizes this, she can do much in helping the boy to pass safely through these rather critical years.

Another phase of the work has to do with the moral problems involved. The social worker is constantly encountering these in both adult and child. She cannot effectively treat them without some knowledge of what constitutes morality, and the source of the various standards of morality. Often she must treat the minor problems without outside expert help. For this reason it is necessary to distinguish between real immorality and unconventionality.

The worker interested in the patients coming to the maternity wards and dispensaries, has unusually difficult problems to handle. She must gain the confidence of the unmarried mother and the "unfortunate" girl. The hospital probably has as much hold on this type of woman as has any other agency with whom she comes in contact. The hospital social worker is able to deal with the physical problems involved and it is the physical side which at first is likely to drive home the real truth of the situation. The worker, then, must show the girl who has been brought up among people of loose morals, why it is detrimental to her to follow in their footsteps. It is not sufficient to tell her she is doing "wrong". Nothing is wrong to her that spells pleasure. She must reckon her deeds by their consequences—usually their physical consequences—really to appreciate their meaning.

It is much the same with the boy to whom we too often attach the term "incorrigible" when by virtue of being a real boy he is merely energetic and acquisitive. Because of lack of proper training he has not yet been blessed with a sense of "mine and thine."

He is not fundamentally bad because he "collects" things which strictly do not belong to him. He is the result of his training. He must be shown the reason why he cannot appropriate all he sees. —presupposing of course that he is not mentally defective or too young for reasoning. The son of a thief, who has been brought up according to the morals of a thief, knows only the standards of a thief. He may readily adopt our standards of morality if he is long enough in our environment to be shown the why and wherefore, but no boy is born with a sense of good and bad. He cannot be, for good and bad vary with different people and different places; it is often purely a matter of geography. The ignorant parent is not likely to recognize in the boy a good trait gone astray. To this parent the boy is thoroughly bad. However, this same parent can be reasoned with and the worker can show him that his boy's nervous energy requires an outlet, and if not given proper channels for this energy, the boy may find improper ones for himself. The badly nourished boy is probably irritable, not bad; the nervous boy is destructive but not wilfully so; and the boy who is growing too fast is a gourmand and lazy.

Up to this point I have spoken of the personal relation of social worker to patient. In contrast to this, and indeed the real reason for this personal relation, is the impersonal relation of hospital to patient. This institution must be impersonal, otherwise it would lose in efficiency. Because of the large number of persons handled, routine is inevitable. Each person must be treated more as a "case" than as an individual; it is, in the main, the body, and not the personality, in which the doctor is interested. For medicine to be a science much sentiment must be held in abeyance. The doctor who treats the patient, having all the while in mind the pain, worry, and doubts of the patient, is very likely to overlook much that is medically necessary. It can clearly be seen however that something more than this impersonal attitude is needed, and it is here that social service steps in. The worker acts as interpreter whereby she presents to the institution a personality, and to the patient a reasonable institution:—in other words, she interprets patient to hospital and hospital to patient. This latter forms a very large part of a medical social worker's tasks. She finds that she is constantly called upon to repeat, emphasize, and interpret the physician's words, as well as to explain the real attitude and purpose of the hospital. Many have a blind fear of the very word hospital, but this fear is often groundless and when approached properly is found to be quite surmountable.

After all, social service work is based on common sense, plus an understanding of human beings, their wants and desires, and a realization that the same principles apply to others as to ourselves. It is true that many who come to us present particular problems which must be solved, but back of these problems we shall find lives not unlike those of most other human beings. To conclude, for the proper guidance of a man's physical life, the worker must fall back on her knowledge of hygiene and medicine, and for the proper guidance of his psychical life, she must turn to her knowledge of psychology.

THE SPEECH OF A LEFT-HANDED CHILD.

By Margaret Morse Nice,
Norman, Oklahoma.

This child was the first case of left-handedness that had been known in either her father's or mother's family. Until she was two years old she was prevented from using her left hand. As she showed no signs of talking by this time, the attempt to make her right-handed was given up. She is the fourth daughter of a college teacher; her sisters are considerably older than she, there being ten years difference between her age and that of her nearest sister. She was slightly slower than her sisters in learning to walk, taking her first steps at sixteen months. All her sisters learned to talk normally.

She came under my observation in a Montessori Nature Study School from the time she was three years and four months old until she was three years and nine months old, and again a year later. She is decidedly left-handed. She uses her hands well, drawing, cutting, modelling and building with blocks better than the other children of her age.

When she first entered the school, her speech was so imperfect that few people could understand anything she said. Her family had tried to improve her pronunciation but found it hopeless. I gave her no drill in articulation.

At three years and four months, these were specimen sentences. " 'E' ou' mä 'a̤';" [Get out of my water]. "Me cō' too," [I (had a) cold too]. "Me 'o͝o' ball." [(Give) me the football]. "Mā' bĭ' 'chool 'ou'," [(I'm going to) make a big school house]. " 'Mo͞o', 'ŭ'," [Smooth, rough].

At three years and five months, her speech was much the same. "Ee mă 'ou' too," [See my house too.] Also, "'ouse" for "house;" "A' 'ight," [All right]. "Me 'igh 'ing too," [(I have a) high thing too]. " 'O'," [Hole]. "Pȧ-ine," [(I want to play with) plasticine]. "'Ake 'ome," [(I want to) take (it) home]. "Me 'ing," [(Give) me the ring]. "Bi' bă' boa'," [Big black board]. " 'Oo'," "'ook," or "look." "Mä' 'ay no cō'," [Mamma said (it's) not cold]. "'Ick 'ĕ-day," [(I was) sick yesterday].

This is like the speech of an eighteen months to two year old child beginning to talk. Final and initial consonants and syllables were omitted, yet not uniformly, for sometimes she said a word correctly which she usually clipped. Her speech was mostly made up of vowels. She did not mispronounce words, she simply omitted them. During these two months I never heard her use a personal pronoun except "me" and "you" and never any form of the verb to be. She would make great speeches to us with all possible animation and lively gestures, but none of us could understand a word. Usually I had to have an idea of what she would be likely to say before I could understand her. Even her own family could not understand her speeches. She was very free in her use of gestures to help her listeners to comprehend.

When she was three years and six months old she suddenly began to improve:—

"Lookie my cake." "Two Mamma ones, two baby ones."

The improvement was striking at three years and seven months:—

"I want to p'ay p'asticine." "I got baby tickie [chickie] too." "I'll show you." "'Et me ho' it." [Let me hold it.] "Has no name." "All right."

At three years and eight months her progress was even more marked:—

"Not come 'chool any more days." "I tell my Mamma two more week." "I wear no coat today. Too hot today." "I'm go' take him out door in my auto'bile." "You got baby ta'pole [tadpole] too." "Co' [come] back to me." "Buy can'y too." [I bought candy too.] "Me got two." "Pĭnt me here," [He pinched me here.] "I want two baby ones." "Open door ple'." "'A' 'ăt?," [What is that?].

Here are a few direct comparisons of words which she repeated after me.

Correct English.	3 years, 5 months.	3 years, 9 months.
Three; seven.	'ee'; 'ĕ'.	free; seve'.
Six; four.	'ĭ'; 'or.	fix; four.
Five; eight.	'ī'; 'ei'.	fi', eight.
Get out of my water.	'e' ou' mä 'a'.	Come out ma water.

She was improving very rapidly at this time; for instance one, week she said "'nake" and the next "snake." Some sounds she was inconsistent in using, as initial "l" and "g", sometimes saying "'et" and sometimes "let," and sometimes changing "g" to "d" and at other times not. Her constant mistakes were "ch" changed to "t"; "j" changed to "d"; "s" omitted before "k" and "t"; "dh" changed to "d" as "fader", "th" to "f"; and "y" either omitted as "'e-ow'" for "yellow" or changed to "w" as "ward" for "yard."

She still clipped her words rather indiscriminately as "bui'" for "build" and "si'" for "scissors." She still made such a jumble of longer words that no one could understand them. For instance "party dress" was incomprehensible in her version until she brought us the object. Her grammar was in a crude state as a glance at the specimen sentences will show. Sometimes she used "I" for the nominative case and sometimes "me". Her verbs were entirely uninflected and so were most of her nouns. Minor words, such as "a", "the", "is", "was", etc., were omitted.

Although a very sociable child and enthusiastic about joining in every game, she did not talk much with the other children. Apparently she had learned that adults could understand her better than children. She directed most of her speeches to me and always answered when I spoke to her. At times she paid no attention to what her playmates said, not even when they told her of the death of the beloved bunny.

At four years and six months she talks English well—nearly as well as the average child of her age. She has not mastered "th" or "dh", saying "frough" for "through", "yat" for "that" and "eiver" for "either". "Girl" and "turtle" she calls "gêrl" and "têrtle". The final "g" of present participles is omitted. She seems still to have some tendency to shorten words and sentences, by leaving out "is" and "have," and pronouncing "very" as "ve'y," "another" as "an'er" and "hasn't" as "ha'nt." When she tells a story she is so eager and in such a hurry that it is not easy to understand her.

The interference with this child's left-handedness until she was two years old seems to have caused such disturbance in her speech center that at the age of three years and five months her language was for the most part unintelligible. Since she was allowed to use her left hand after she was two years old, the disturbing influence lasted very markedly for a year and a half and to a lesser degree for another six months. The improvement which began at three and a half years was not due to training, for she received none. The development was entirely spontaneous after she had seemingly reached the stage when the disturbing influence was overcome. At the age of three and a half the right side of the brain apparently gained the mastery over the left side, and her speech was definitely localized. After this the improvement in her language was remarkably rapid. At four and a half years she talks nearly as well as other children of her age.

HOW CAN PARENTS UNDERSTAND THEIR CHILDREN?

BY MARGARET OTIS, PH.D.,
Philadelphia, Pa.

The lack of a place in our educational system for preparation of the young for the duties devolving upon them as parents is, sadly enough, too glaring a defect to be longer overlooked. Spencer's comment upon this point will bear repeating: "But though some care is taken to fit the young of both sexes for society and citizenship, no care whatever is taken to fit them for the still more important position they will ultimately have to fill—the position of parents."

Such a comment calls attention to a need which is definitely felt in our society. His urgent plea that the "theory and practice of education" be introduced as a subject of study into our school curriculum finds unanimous agreement in every thinking mind that reads his essay on moral education. But how? Has the need been met sufficiently by the courses in home economics that are at present so much in vogue? Or has the work been accomplished by the mothers' clubs and social-center work that is being pushed by our ardent social workers? How can the art of understanding and awakening intellect and providing for its further development be taught? Many courses have been introduced, looking to the physical comfort of the home. The art of home-making—is it not to keep the home clean and attractive, to make war vigorously on all germ life, to study house decoration, to investigate the mysteries of dietetics, to cook inviting meals, and so on. The physical care of children has also been much dwelt upon. A nurse's course of training is desirable, including a thorough-going study of nutrition. Truly a maiden must have a college course in all these departments before she may say yes to the man who asks her in marriage.

Alas! She may have had all this and more, and yet fail in the essential understanding of the child she is endeavoring to rear. Understanding is not easily acquired by taking courses of study. A child is an individual not like any one else in the world. His destiny, pointed by inheritance, is woven from the rich world of experience that supplies the material for his mental life; his body a growing organism, his mind a complex of ideas, impulses, and emotional experiences constantly changing, leaving indelible impressions that determine the character of his later life. How to understand the proper moment for suggesting the right activity is the mother's task. Woman's instinct and mother-love may do much. Can science help her to do more? To steer a youth through the difficult time of adolescence requires more enlightenment than is now present in many homes. To know oneself and one's own need, which is the first step toward self-guidance, is difficult to acquire. How much more so, to teach this to another! How many mistakes proper guidance will save the young boy or girl!

To the thinking mind a study of failures well repays the effort spent. The present results from this study are rich in warning as to what *not* to do. These negative results are sometimes as valuable to science as great discoveries. A study of wrong conditions perhaps may prove to be the best guide to the right. The study of causes and conditions that lead to delinquency reveals a noted lack of mother care and understanding. In a school for delinquents, an investigation of 200 cases shows that lack of proper mothering occasions at least 80 per cent of these failures in life, for failures at their very start they are judged to be by society, whatever the future may hold for them. Studies of particular cases furnish excellent comment on this need of understanding a girl's nature. The following story illustrates how a very good mother may be a very inefficient guardian or companion to her own daughter:

Olive Rosenbloom, a Jewess, grew up in a home where the sternest code of morality was observed. As the youngest child and only daughter, she easily became an important member of the household. Her older brothers at first regarded her as a plaything, a doll-like creature made expressly for their entertainment. Then "Sissy" was sometimes in the way and they ordered her around and bullied her. At hardly any time in her life had she been regarded seriously. She slept late if she chose; practiced the piano if she wished, otherwise not. Her mother was a hard-working woman and kept the comfortable home neat and clean. She cooked and sewed for her family and thought the world of her pretty daughter. Of an intensely practical nature herself, she felt she had done her duty when the house was in order, the ironing done, and Olive's best dress was hanging in the closet ready for the next school entertainment. Olive never knew what it was to be in need of even a ribbon. All was thought out and planned for her. No unpleasant tasks were assigned, and when at home from school she was free to do as she pleased. Yes, Olive's mother loved her.

Olive was a good-natured, fun-loving girl, and had not the slightest idea that she was made a baby at home. She was a member of a girls' society, sang at entertainments, and went around with the young set of the town in which she lived. Well-developed and large for her years, she was often thought to be much older than she really was, and in the town passed for a young lady of at least eighteen, ready to "keep company". She was in reality but fifteen, in the second year of high school, where she was taking a business course, at the advice of one of her practical brothers. She found it rather more difficult than she had imagined, became quite discouraged over her school work, neglected it, and sought to drown the reproofs of her conscience by seeking more amusement in the evenings. No one knew anything was the matter. Her mother thought that Olive was going around a little too much and began to make some rules about the time she should be in her room at night. This led to a few deceptions and white lies on the part of Olive,—"Oh, yes, mother, I was in at nine o'clock last night. I came in when you were kneading the bread in the kitchen and you didn't hear me." She would sometimes even come home at the right time, go to her room, and then slip out again when no one was looking.

At a dance at Rosie Schreiner's, Olive met Jack Carter, a handsome fellow. No one seemed to know much about him, but he was good company and Olive had such "dandy" times with him. She walked with him outside during some of the dances. They were congenial comrades, and gave and took mutually in the way of repartee. She made him keep his distance when she wished, but flirted with him off and on all winter. One night he held her in his arms and kissed her. She grew hot and ashamed, pulled herself away, and ran home as fast as she could. She was now genuinely troubled and felt extremely uneasy. Did she confide in her mother? Why, no; her mother was always busy either canning fruit or interviewing some meat or grocery man. And why shouldn't she have a good time with Jack Carter? She wasn't going to marry him, of course. She felt secretly ashamed of some of his rough, coarse ways; but Jack's sensual nature had been roused and he seemed obsessed to get the girl. He watched his chance, and one night, as Olive was hastening home after a stolen evening of enjoyment, he intercepted her. She was too frightened to resist. He claimed she had jilted him and reproached her, saying: "You promised to marry me, and, by thunder, I'll blow your brains out if you don't." Olive had never been instructed in any way that would have proved helpful at this crisis, so she yielded to his impetuosity and went off with him that night to a neighboring town. He gained his purpose and then left her. It turned out that he was a married man, whose wife was seeking a divorce, the cause for which he had already given many times over.

Olive was afraid to go home. She had heard her father and brothers speak at times in the severest way of women who had lapsed from morality. It seemed there would be no hope of pardon from any of the stern moralists of her family. She thought despairingly of each of her three brothers, much esteemed as they were in the town. All of them held positions of importance in the community and were getting up in the world. Now she was condemned, an outcast doomed to perdition. Where could she go? Who would take her in? In her home she had been petted and babied, but in no way given a training that would enable her to become a womanly woman. And now, in her failure to stand in one of life's difficult pathways, she naturally would meet with only condemnation and contempt.

At length she did succeed in finding employment as clerk in a small shop and remained in hiding for a couple of months. Her mother, thoroughly alarmed at her daughter's disappearance, had put a detective at work to search for her. When finally she was found, her motherly indignation knew no bounds when she learned all the details of Olive's secret life of amusement, and had her sent immediately to a home for delinquent girls. It seemed to Olive that the world had come to an end for her. Her brothers, horrified at their sister's misfortune, said they would never forgive her for disgracing the family in that flagrant way. Her mother was stunned by the blow and could not imagine why this terrible misfortune had come to her lot. To rear a daughter who could not keep straight! The disgrace of it!

In the Home, Olive, after a period of rebellion, seemed to come to herself. She learned to cook, to clean, to wash and iron. Never before had she done such menial tasks. The superintendent of the Home, kinder than her own family, assured her that she had a chance to redeem the past,—let her take heart and work her way out. The despised stenography even came to be a help to her, and she was given a chance to work evenings at her books. A place was found for her after some time by a friend of her own nationality and she worked hard to deserve the trust and confidence placed in her. A couple of years later she went home with a good record. Her mother, who had given her up for lost, was surprised to find her in such good trim and so capable in all that she did. Could this be Olive, the happy-go-lucky, ne'er-do-well? Why had she not been able to bring about this result herself? Wherein had she, as a mother, failed? Olive had good mental ability, good sense, and a wish to do well and get along in the world, but the mother knew not what was in her daughter. She had been a complete stranger to the real Olive.

This story is an instance of unnecessary failure. The girl in question, with common-sense guidance, would have developed to be a good, ordinary girl, fit to be the wife of a good, ordinary man. Mothers must conceive their task as something higher than that of a housekeeper or a nurse. The best and only advice to a mother, and advice to be oft repeated, may be given as an adaptation of the Greek: "Know thyself," *Mother, know thy child.*

REVIEWS AND CRITICISM

Natural Education. By Winifred Sackville Stoner. Indianapolis: Bobbs Merrill Co., 1914. Pp. 295.

Mrs. Stoner tells how she trained her little daughter, by a system which she calls "natural education," so far to exceed the average child of her years, that Winifred Sackville Stoner, Jr., has acquired a nation-wide reputation for her mental and physical attainments. Mrs. Stoner does not claim more for her daughter than that she is "a healthy, normal, happy child, possessed of unusual physical strength and more knowledge than most children of her age." This result was achieved through "the help of living close to 'Mother Nature,' and in the company of the great giants, 'Observation' and 'Concentration,' and the spritely fairy 'Interest,' assisted by mortals' best friend, 'Imagination.'" However this may be, Winifred's achievements are rather breath-taking to the average reader.

As Mrs. Stoner, like Ellen Key, is a firm believer in pre-natal influence, Winifred's education began before she was born. Mrs. Stoner read good books, had beautiful thoughts, heard good music, looked at the beauties of art and nature, and indulged in happy imaginings and the performance of good deeds.

When the baby was six weeks old, she sat alone; she also lay quietly or kicked pugnaciously, according to whether her mother read her Tennyson's "Crossing the Bar" or "Horatius at the Bridge." Before she was six months old, she could ring at request the red, blue, or green bell, which hung at the foot of her bed. At one year, she scanned from memory the first ten lines of Virgil, repeated "Crossing the Bar," brushed her own teeth, and talked like a grown-up person. At sixteen months she learned to read. At eighteen months she directed her nurse how to get to the parade grounds at Old Point Comfort, or to the wharf to watch the boats, and she knew the difference between a ship, yacht, steamer, brig, launch, etc. Before she was two years, she astonished hotel clerks by writing her name in the register. At the age of two, she asked an art-dealer why he did not have a Venus de Milo in his shop as well as a Venus de' Medici. At that age also, she was sent to near-by stores to make purchases, and she invariably called the clerk's attention to any error in change, if only a penny or two. From the age of two, she began to keep a diary. Before she was three, she copied tales and wrote original rhymes, letters, and stories on the typewriter. At three, she rode horse-back, was remarkably proficient in spelling, knew all of her notes and could play simple airs on her play-piano. Before she was four, she had learned Latin declensions and conjugations as singing exercises, and when just four "she lost faith in the wisdom of some professors who did not understand the salutation '*quid agis*' and gazed at her blankly when she spoke of the courses at the table *ab ovo usque ad mola*." At four also she embroidered a mat, and received a diploma for being able to read, write, and speak Esperanto. Before she was five, she could scan from memory the first book of the Æneid, knew over five hundred sayings from great Latin authors, and knew by heart all of Longfellow's "Hiawatha." At the age of five, having read the poem only once, she repeated "The Battle Hymn of the Republic." She taught her playmates Esperanto, translated Mother Goose rhymes into Esperanto, had a high school knowledge of history, literature, and mythology, and expressed her thoughts in eight languages. Before she was six, she learned the waltz, two-step, and three-step. At seven, she played chess. At eight, she composed a jingle which named all the bones in the body. Between eight and ten she did all her mother's marketing, and was pronounced a shrewd buyer. At the time the book was written, when she was ten years old, she could recite portions of Caesar, Cicero, Sallust, Livy, Horace, etc., and had translated their works. At that time, also, she was teaching a large class of children ranging in age from five to fourteen, in the Teachers' Rooms of Carnegie Institute.

This incomplete summing up by no means represents all Winifred can do, only these are the performances mentioned, together with the age at which they were accomplished.

In training Winifred's mind, Mrs. Stoner was not afraid to give it plenty of occupation from earliest infancy, her belief being that it is lack of occupation which engenders bad habits in both old and young. She does not believe that thinking and study by themselves have ever produced evil results, and she fed Winifred's brain as early and as generously as her stomach. She was treated as a thinking human being from the day of her birth. The sense of hearing was the first to be developed, by letting the child hear constantly sweet and rhythmic sounds. Then her ear and eye were trained by the colored bells already mentioned, which hung at the bottom of her bed. When she was six months old, her mother "placed a border of white card-board four feet in height around the walls of her nursery. On one side of the wall I pasted the letters of the alphabet, which I had cut from red glazed paper. On another wall I formed from the same red letters simple words arranged in rows, as bat, cat, hat, mat, pat, rat; bog, dog, hog, log. You will notice that there are only nouns in these lists. On a third wall were the numbers arranged in ten columns, one to ten in first column, ten to twenty in second, etc. On the fourth wall there were pictures of notes in the musical scale." Her colored nurse, who had a sweet voice, sang to her the letters of the alphabet, while Mrs. Stoner pointed to them. About here, one begins to wonder how a family of ten would have fared, if a single child needed and absorbed so much time and attention.

Later on in Winifred's life, games were used in endless ways to teach arithmetic, literature, geography, music, dancing, history, mythology, and languages. Most of these games were played with cards and were invented by Mrs. Stoner as the occasion arose, though parcheesi was also used. Through the type-writer, Winifred learned construction, punctuation and spelling. Jingles, too, played a prominent part in collating facts and impressing them on the mind. All out-doors was used as a school house, and the study of trees, flowers, birds, insects, and animals, combined with drawing and photography, constituted a valuable part of Winifred's training.

Mrs. Stoner has very decided ideas on discipline. She highly disapproves of all corporal punishment, all scolding, the saying of "don't" and "must," the rousing of fear in a child, teasing it, or permitting it to say "can't." In her daughter's case, she was apparently able by prizes, rewards, and deprivations, approval and disapproval, the telling of fairy stories applicable to the morals of the case, and other quiet means, to get the desired results.

She dismisses Dr. Montessori with a curt word of praise for her work with *defective children*, but thinks her system can never be of benefit to normal children because it lacks imagination. One feels quite certain that even if Montessori had contributed a hundred times more than she has to the science of pedagogy, Mrs. Stoner would still have condemned her work on account of the Italian educator's reference to "foolish fairy tales." For fairies are Mrs. Stoner's pet hobby. She even goes so far as to state that she has "never met anyone reared in a fairy-less home who grew into a warm-hearted, happy man or woman." This and similar generalizations arouse in us a faint suspicion that with all her learning, Winifred will probably lack scientific accuracy and restraint of expression.

There is no doubt that Mrs. Stoner has done an amazingly fine piece of work, developing her little daughter mentally and physically to a very high degree of proficiency, and opening up to the child endless channels through which pleasure reaches her. The question is,—could you achieve approximately the same results by applying these methods to other children? Mrs. Stoner apparently believes you could. Even granting that Winifred is not a very unusual child, there still remains the fact that Mrs. Stoner is a very unusual mother, and Winifred has no brothers and sisters with whom to share her. The sad conviction is therefore born in on the mind of the reader that the applicability of this interesting experiment will be necessarily limited, owing not so much to the lack of proper children as to the dearth of suitable parents.

E. R. W.

NEWS AND COMMENT

Dental Hygiene in New York City Schools.

As a result of the dental hygiene week, held in New York City in May, 700,000 boys and girls have been equipped with individual tooth-brushes and dentifrice. The importance of keeping the teeth clean has been explained to the children, and they have had it impressed upon them that much toothache can be averted by using the tooth-brush with paste or powder at least twice a day. The response from the children has been hearty and almost unanimous. If the authorities can follow up this enthusiastic beginning with regular and thorough dental inspection and treatment for caries, there is no doubt that the health of the rising generation will be greatly improved and their efficiency likewise.

International Congress of Education, August 16th to 28th.

Teachers going to California this summer should so plan their itinerary that they may attend the conventions in Oakland from August 16th to 28th of the National Education Association and the International Congress of Education. These conventions, which undoubtedly will be the greatest educational meetings ever held, will assemble in Oakland's new Municipal Auditorium.

The Psychological Clinic

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RETARDATION IN SALT LAKE CITY.

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This study was undertaken as a part of the recent educational survey of Salt Lake City, under the direction of Dr. Ellwood P. Cubberley, of Stanford University. The results here presented were included in a chapter of the survey report entitled "The Progress of the Children through the Schools."

The population of Salt Lake City is approximately 105,000, of whom 18.5 per cent are children of school age. This proportion of children is above the average for American cities, and considerably above that of western cities. Like other cities of the West, the population is increasing rapidly, and hence retardation and problems of a similar nature reach very large proportions.

Table I shows the distribution of children for each half year of age and each half grade. The heavy lines running diagonally through the center of the table enclose the number of children who may be said to be making normal progress, as regards age-grade distribution. For example, this includes those in the first grade who are between the ages of 6½ and 8 years; those in the eighth grade who are not younger than 13½ or older than 15 years. This classification is based upon the fact that children usually begin school at 6 years of age and complete the eight grades of the elementary school at 14. Those represented by numbers above the diagonal lines may be considered accelerated, or under the average age for their grades. Those below the diagonal lines are retarded, or over the average age for their present grades. The degree of acceleration or retardation depends upon the distance above or below the lines enclosing the normal group. This does not, of course, take into consideration the reasons for children being accelerated or retarded. It is merely a presentation of the age-grade conditions during the month the survey was being made.

TABLE I.—AGE-GRADE DISTRIBUTION OF PUPILS.

Ages in Years and Months	Kinder-garten	Grade I		Grade II		Grade III		Grade IV		Grade V		Grade VI		Grade VII		Grade VIII		Grade IX		Grade X		Grade XI		Grade XII		Total
		A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	
Under 5	13																									13
5.0 to 5.5 inclusive	72																									72
5.6 to 5.11 "	210	4																								214
6.0 to 6.5 "	224	33	49		1																					307
6.6 to 6.11 "	91	216	531	4																						842
7.0 to 7.5 "	28	139	560	41	42	4																				814
7.6 to 7.11 "	5	157	394	163	284	16	2																			1021
8.0 to 8.5 "	1	44	222	155	407	66	50	2																		947
8.6 to 8.11 "		18	101	116	282	191	264	17	2																	991
9.0 to 9.5 "		7	40	79	167	177	334	58	41		2															904
9.6 to 9.11 "		5	22	34	88	162	322	158	168	12	5															971
10.0 to 10.5 "		2	5	16	53	87	227	187	236	68	44	3	2													925
10.6 to 10.11 "		2	5	11	30	65	110	162	282	112	131	33	5	1	1											950
11.0 to 11.5 "	1	3	8	11	17	34	78	116	185	167	230	49	25	4	1											924
11.6 to 11.11 "				2	9	22	52	88	136	121	196	67	91	13	11	1	1									805
12.0 to 12.5 "			2	2	6	11	26	43	88	106	169	158	175	31	28	6	2									848
12.6 to 12.11 "		1		1			10	27	57	155	146	134	183	73	105	7	17	1								917
13.0 to 13.5 "					1	3	6	18	37	59	77	127	163	110	146	22	55									824
13.6 to 13.11 "							4	18	20	28	56	75	139	105	194	58	103	4	10							809
14.0 to 14.5 "					1		2	2	12	25	29	55	86	118	157	73	150	12	14		1					737
14.6 to 14.11 "				1			1	4	8	15	27	49	64	75	152	58	188	36	67		2					747
15.0 to 15.5 "						1		1	5	9	16	27	47	54	88	65	172	53	84	6	24		4			656
15.6 to 15.11 "									2	5	2	12	19	26	53	39	142	66	88	15	44	2	6			521
16.0 to 16.5 "								1		1	3	5	7	8	18	16	75	30	69	18	59	1	19		3	333
16.6 to 16.11 "									2	1	2	2	3	4	8	9	38	24	53	15	76	8	41		8	294
17.0 to 17.5 "									1					1	2	3	21	21	49	17	68	15	50		11	259
17.6 to 17.11 "														1	2		8	17	30	7	54	12	40	1	31	203
18.0 to 18.5 "																4	3	7	14	6	22	7	44	3	39	149
18.6 to 18.11 "																	1	8	14	2	16	6	29	1	54	181
19.0 to 20																		5	7	9	10	11	26	1	55	124
Above 20																		2			2	1	6		4	15
Total	645	631	1934	636	1388	839	1488	892	1272	879	1135	796	1009	624	966	361	976	286	499	95	378	63	265	6	205	18,268

The percentages of the three groups represented are as follows:

Accelerated	16.2 per cent
Normal	40.4 per cent
Retarded	43.4 per cent

TABLE II.—PERCENTAGES OF ACCELERATED, NORMAL, AND RETARDED PUPILS BY GRADES.

Grade	Per Cent Accelerated	Per Cent Normal	Per Cent Retarded
I-A	5.9	55.8	38.3
I-B	30.0	49.3	20.7
II-A	57.1	30.7	12.2
II-B	23.6	49.6	26.8
III-A	10.7	43.9	46.3
III-B	21.3	44.0	34.7
IV-A	8.6	38.8	52.6
IV-B	16.2	40.8	44.0
V-A	8.5	31.7	59.8
V-B	16.1	37.5	44.6
VI-A	10.7	28.3	51.0
VI-B	12.2	35.5	52.3
VII-A	7.7	29.8	62.5
VII-B	15.1	35.3	49.6
VIII-A	9.9	36.4	53.7
VIII-B	18.1	34.7	47.2
IX-A	5.7	31.2	63.1
IX-B	18.1	34.4	47.5
X-A	6.3	34.7	59.0
X-B	18.7	35.7	45.6
XI-A	4.8	37.3	57.9
XI-B	26.3	33.9	39.8
XII-A	66.7	33.3	0.
XII-B	25.7	45.2	29.1
Entire City	16.2	40.4	43.4

The percentage of retardation found here is above that of the majority of American cities where similar studies have been made, although this ranges from 19 per cent in Quincy, Mass., to 51 per cent in Passaic, N. J.*

Table II shows the retardation for each grade, as well as the per cent of normal and accelerated pupils for each. The average for any entire grade is not far from the city average, including in some cases more than half the children in the grade.

An important factor in connection with a study of retardation is the degree of variability from the normal distribution. Of the 43.4 per cent constituting the retarded group, some are retarded less than one year, some one year, some two years, etc., and not infrequently the degree of over-age is as great as five years. Taking an average grade for illustration, we find that the teachers have to deal with a very wide range of ages. The following table represents the percentage distribution of the children of different ages in the fifth grade:

Ages in Years and Months	Per Cent of Pupils	Classification
9.0–9.5	0.1	Accelerated
9.6–9.11	0.5	
10.0–10.5	5.0	
10.6–10.11	12.0	Normal
11.0–11.5	19.0	
11.6–11.11	17.5	
12.0–12.5	13.3	Retarded
12.6–12.11	15.0	
13.0–13.5	7.0	
13.6–13.11	4.0	
14.0–14.5	2.5	
14.6–14.11	2.0	
15.0–15.5	1.3	
15.6–15.11	0.4	
16.0–16.5	0.2	
16.6–16.11	0.2	

Children in the fifth grade who are more than 12 years of age may be reasonably considered retarded; and yet in this grade 17.6 per cent are more than 13 years of age; 6.6 per cent are older than 14, and 2.1 per cent are older than 15 years. There are more children two years retarded than the total number of accelerates. Not every teacher of a fifth grade class has pupils of all the ages shown in the foregoing table; but there are classes in the city where an amount of variation fully as great may be found.

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* Ayres: The Identification of the Misfit Child. Bull. 108; Russell Sage Foundation.

Fig. 1 shows the distribution of retardation in the elementary grades. The figures for the half-grades have been consolidated for this purpose. There is an over-ageness in the entering grade of 29.5 per cent. This includes, of course, those who have failed of promotion their first year in school. The amount increases greatly until the sixth grade, where the maximum is reached. That there is a general decrease in the amount of retardation beyond the sixth grade has been noted in other studies. A large part of this is due, not to the increased efficiency of the instruction in the grades beyond that point, but to the dropping out of school of the retarded pupils. Probably no single fact argues more strongly for greater attention to industrial training and vocational guidance before the time of discouragement is reached. It is very evident that failure to make progress in the traditional school subjects has caused many pupils to leave school who might have been saved for training in some practical and useful line of work, had the opportunity been afforded at that time.

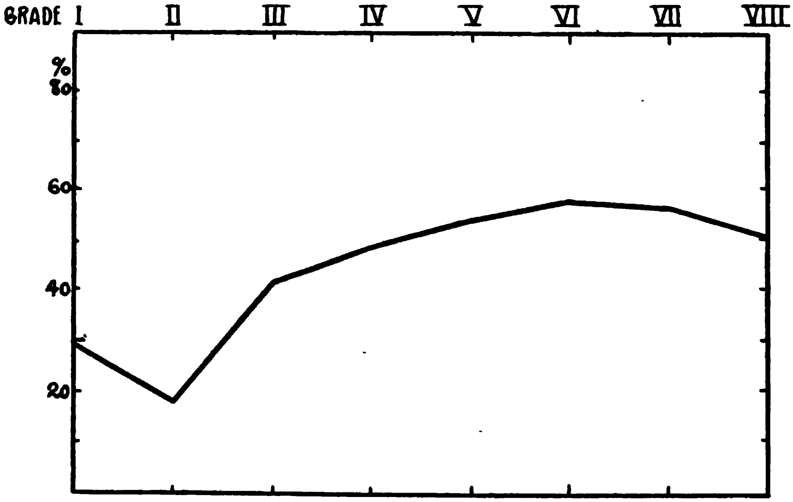

FIG 1. RETARDATION IN ELEMENTARY GRADES.

It is a matter of common observation that the presence of greatly over age pupils in a regular class is a hindrance to the progress of the normal pupils, an injustice to the teacher, and often of little value to the retarded pupils themselves. This is especially true in growing cities, where the greatly increasing number of children to be cared for has caused many classes to have more pupils than the generally accepted standard. The following is a fair sample of the results brought about by placing children of greatly varying ages in the same class.

Miss L., teacher of grades 2-B and 3-A, has a class of 39 pupils. They range in age from 7 to nearly 13 years, being distributed thus:

Ages	2-B	3-A
7.0- 7.5	2	
7.6- 7.11	4	1
8.0- 8.5	6	1
8.6- 8.11	3	1
9.0- 9.5	3	4
9.6- 9.11	1	1
10.0-10.5	1	4
10.6-10.11		3
11.0-11.5	1	
11.6-11.11		
12.0-12.5	1	1
12.6-12.11		1

Those represented by the numbers between the heavy lines are normally distributed. Probably all of those below the dotted line are sufficiently over age to warrant their removal to special classes. We should ordinarily consider 39 pupils too large a number for one class, even if all were normal, or approximately so. The time which would necessarily be given to instruct properly such a class as the one given here is surely greater than the length of the school day.

There are 1670 school children in Salt Lake City who are repeating the work of their grades. This is approximately 9 per cent of the school enrolment. The great majority of these children are taking the work for the second time. Others have gone over the work of the same grade as many as five times. The distribution is as follows:

Taking work second time	1555
Taking work third time	101
Taking work fourth or more times	14

Many more would be taking the work for the third and fourth times were it not for the dropping out of school due to repeated failures.

The great difference between the number of second time and third time repeaters suggests that there may be an over-generosity on the part of teachers in promoting pupils who have "made up" their work after having gone over the work of the grade for a second time.

Fig. 2 shows the distribution by grades, of failures and promotions during the past year. The number of failures in grade 1-A is approximately 16 per cent of the number enrolled. The proportion decreases after the first few years, and in the last year of the elementary school it becomes relatively very small. This is the result of the weeding out of the pupils who make slow progress.

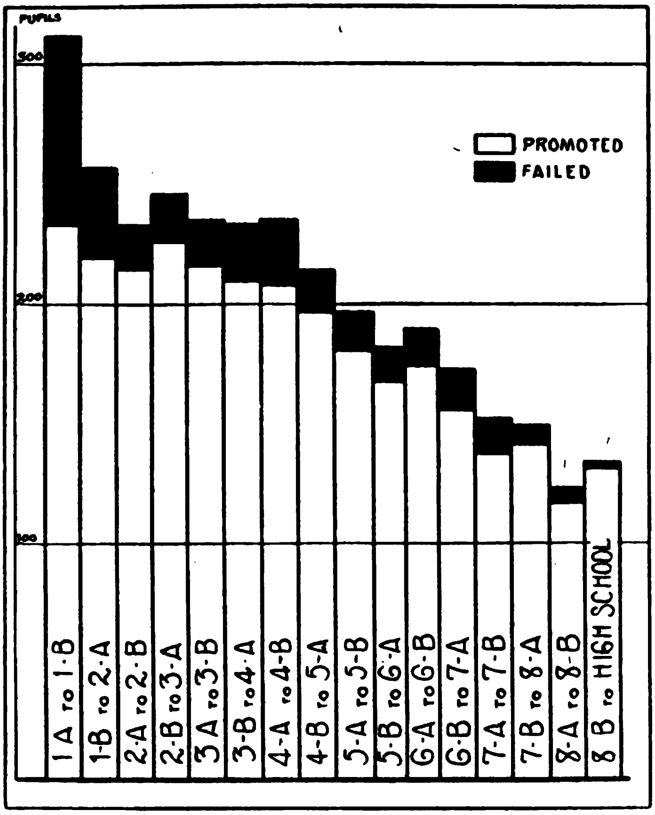

FIG 2. FAILURES AND PROMOTIONS BY GRADES.

The teachers were asked to state, in each case of repetition, the probable cause for failure. In ten schools, selected at random, in which there were 509 pupils repeating the work of the grade, the reasons given by the teachers were as follows:

	Cases.
Illness or physical defects	115
Dullness	107
Retarded mental development	103
Poor home conditions	38
Inattention or lack of application	35
Poor attendance or truancy	34
Immature	22
Language difficulty	16
Change of schools	14
Entered too young	10
Slowness	8
Laziness	5
Entered too late	1
Delinquency	1

These are representative of the causes to which teachers commonly ascribe retardation. Many others have been given in individual cases.

It is significant that in a large number of cases the teacher has recognized that mental deficiency in some degree has been the chief contributing cause. Probably many of the children for whom other reasons have been given would be found, upon examination, to be of less than average intelligence. Teachers often fail to appreciate the importance of this factor except in cases where the defect is obvious, and there is no other possible explanation. There are probably many feebleminded children among those marked "poor home conditions," "inattention," "language difficulty," "slow," and "lazy." Apart from mental deficiency, it seems that ill health and physical ailments are the most important contributing factors in retardation, although not uncommonly children of low intelligence are physically defective.

Remedial measures in the city have taken on three forms: (1) a special school for backward and feebleminded children; (2) ungraded rooms; and (3) the grading of backward children by school subjects.

The special school accommodates approximately 100 pupils. Five teachers and a principal are provided. Pupils are sent to this school from all parts of the city, and are transported at the expense of the school. The principal is a psychologist, and devotes his time, apart from his administrative duties, to the examination and classification of pupils. The survey has recommended that this school be enlarged to accommodate not less than 250 pupils, and that a well equipped psychological laboratory be provided in connection.

The ungraded rooms in this city are in reality rooms set apart for teaching on the Batavia plan. There are ten of these rooms, in six of which the teachers devote full time to the work. In the remaining cases teachers of domestic science give such time as they can to the special class. Pupils in these classes are given special instruction in the school subjects in which they are most deficient. The school day is divided into periods of thirty minutes each, and a new class is formed each period. In one school the special teacher could instruct 70 pupils per day in this manner. These rooms, while rendering valuable service to the school, cannot take the place of special rooms for backward and feebleminded children. Too often a child's all-round mental retardation is overlooked in attempting to build him up in his most difficult subject.

The third plan, that of grading pupils by school subjects, has been adopted by certain schools where no "ungraded" rooms have been provided, or where in some cases this room has been abolished for purposes of cutting down school expenses. Backward pupils are assumed to belong to different grades in different subjects. For example, a boy may be classified as belonging in the second grade in arithmetic, although in reading and geography he may be doing average fourth grade work. He is therefore placed in the second grade during the arithmetic period, and allowed to continue his other studies in the fourth grade. This plan is fully as inadequate as the one previously described, and does not solve the problem of the backward child. Teachers using these methods have often gained the impression that intelligence may be developed by giving a child a special opportunity to "catch up" in his school subjects.

It was recommended that the city make more adequate provision for special rooms, for the continuous training of backward and feebleminded children, based upon the level of intelligence of each; and that special instruction by subject grading be confined to children who are of normal or nearly normal mentality. It was also urged that as soon as is practicable special instruction in classes be provided for children who show tendencies which may lead to delinquency, and for children of superior intelligence.

Let it be emphasized that Salt Lake City is not an exception among American cities either in the amount of retardation in the public schools, or in the fact that insufficient attention has been given to the problem. It is probably above the average city in respect to the latter. Educational surveys in different cities during the past few years have often dwelt at length upon the relation which school retardation bears to school efficiency, and its importance is in need of still greater emphasis.

BRINGING CHILDREN UP TO GRADE.

By Carrie A. Ritter,
Syracuse, N. Y.

Why must we endeavor to bring children up to grade in school work? Why have they fallen below? Why, since few children are doing all they might, must it be necessary for any to have extra tutoring? Or, if not up to grade, why should they not be left to repeat the grade until such time as they are capable of doing advanced work?

Partly must we endeavor to give them the desired requirements to please ambitious parents, who wish to see their offspring advance as swiftly up the educational ladder as do the neighbors' children.

The main point is to arouse interest, for it is much easier to maintain it than to gain it. Once let the child get in a way of studying and a satisfaction in results of work accomplished will spring up, then half the battle is won.

Teachers tell us that for many a child there is a decided turning point in his educational life, a time when he comes to realize why he goes to school. From that time on there is less difficulty. To carry him safely past this point and send him forward, rather than let him drop out of school is one great reason for trying to bring him to grade, lest he become discouraged by repeated failures.

Give a child a purpose that he may enter upon some chosen work, and he will study. A boy must know mathematics that he may study engineering, a girl must have a certain training before she can study nursing.

It seems to me that lack of attention and desire to study, playing and whispering in study hours, wasting time by inattention and watching some other pupil at work or at some mischievous prank, absence from school often with parents' sanction, rather than want of ability, cause a child to fall behind in school. There are, of course, many exceptions to this, children who are "slow" for various reasons, particularly from physical defects. The slow pupil cannot quickly grasp the teacher's meaning in her explanations to the class. While he is puzzling it out, she has gone on to something else with the quicker ones. Much is lost to the slower, and naturally his interest lags since the connection of ideas is gone. Have you not felt a similar lack when attempting to listen to a sermon or lecture of which you could not get the whole? Presently you gave up trying to hear and went to thinking of something else.

Often the children who fail are from families where the elders read almost nothing and the youngsters themselves rarely touch even a newspaper or magazine, so they lack general information. We know a young contractor and his wife who read little beyond the daily paper or a fashion-magazine—and not always those. They seem to know nothing of the pleasure aside from the information to be obtained even from fiction. "No, we have no time to read," the wife says.

Once we fell to describing to them a story which dealt with certain phases of life in the Ozarks. They listened very attentively, finally the man said, "Why, I didn't know you could learn about places from stories. I believe I would like that kind." They are an industrious couple, who admire knowledge in others but they simply do not know where or how to get it for themselves. This is not due to lack of time, as they thought, for they have spent more time in telling what they had to do than in doing it.

We know two boys past sixteen years of age who have not completed the elementary subjects, spelling, history and grammar being those in which they fail repeatedly. The mother of one told us her son *never* read anything. When we mentioned a question in the state examination in which he had failed, "State who each of five of the following is: William Jennings Bryan, Colonel Goethals, Elihu Root, George Dewey, Robert E. Peary, Charles S. Whitman, Thomas A. Edison," she said, "He would not even know who Bryan is, for he does not read such things."

A mother may do much to help her child along in school, yet the principal of one school tells us that when the child must be brought up to grade he refuses to accept the mother as instructor, though she may be capable, because she so rarely fulfills her promise to attend to the lessons. He prefers a professional tutor who can give all her attention to the work.

Even if the mother intends conscientiously to hear lessons, the only possible way is to have a specific time for them with which nothing must interfere. Many things happen in a house to break in upon home lessons,—visitors, social and business engagements, household demands, "so we'll put off your lesson today, Robert, and surely do a double amount tomorrow." When tomorrow with its new demands comes, again the lessons are slighted.

Often it is only one subject in which the child fails. Dr. Naomi Norsworthy after experiments with school children says, "It seems probable that certain functions which are of importance in school-work, such as quickness in arithmetic, accuracy in spelling, attention to forms, are highly specialized and not secondary results of some general function. That just as there is no such thing as a general memory so there is no such thing as general quickness or accuracy or observation. * * * Accuracy in spelling is independent of accuracy in multiplication and quickness in arithmetic is not found with quickness in marking misspelled words."

This is rather a broad statement which will bear investigation since we are inclined to expect a child accurate in one subject to be accurate in others. Yet this would carry out the accepted idea that a pupil who excels in mathematics is not good at foreign languages. From experience we know this is not always true, but often when there is a decided preference for one the other is poor.

One writer states as her belief that children do not work well at school because they have never been taught to work at home, that the child who from babyhood has had some definite chores to do daily will concentrate his attention in school. She adds, "Deplorable as are the evils of child labor, they are not as far-reaching and destructive as the evils of child idleness." There are certainly extremes in this matter, and it would be interesting to follow out a few examples to see what the best and poorest pupils did out of school hours.

Very few children over-study, though we have known a few, a very few, who were intent upon study, to the sacrifice of health, because they set themselves high standards of work.

More often children who claim to study a large number of hours out of school hours are not studying, they are sitting with a book or paper before them, merely looking at it or idly drawing lines, not even pictures on the paper or margins of the book. Mabel, who had to be tutored to keep her up with her grade and her parents' ambitions, took much credit to herself because she spent two hours daily on home work. Her paper bore crude figures, she never was known to complete any lesson assigned, either long or short, showing that the two hours were wasted. She could have finished the work in half an hour.

An excellent story is told by a teacher of how a class of boys were told they might go home a half hour early if their work was completed. They accomplished it easily, and the next day a similar amount was given with permission to go even earlier if the work was well done. They did it in even less time and the time was shortened each day until they accomplished in a morning what had formerly taken all day. We tried this out with a boy we were bringing up to grade and found he could do in twenty minutes what had taken one hour if he did not want to be dismissed quickly to go to a ball game. It was well done, too, neatly and accurately, if written.

Supervised lessons are what the backward child needs, to be taught how to study, how to concentrate. "Unfortunately many have not learned the greatest and most important lesson of all—to do exactly what he is told to do."

In some schools far too much work is supposed to be prepared at home, where it is *not* prepared, for the average house is not a good place in which to study. There is too much going on. The child is allowed to cease his preparation on the slightest pretext. We see very small children carrying home many books, we wonder if it is not wiser to have them do that work under the teacher's eye.

W. C. Bagley in "The Educative Process" states that "the mind is constantly open to distractions—it always tends to follow the line of least effort." We all know how that is from personal experience, we know how our own attention can be diverted from our work and we have seen our pupils' attention drawn away by a dog coming into the room or some person stopping at the door. Immediately the child is alert to investigate this new matter. Mr. Bagley adds that a slight distraction may be essential to the best work, but the power to go on working among distracting influences comes only after long training. "The capacity for work is the capacity for sustained effort. It means concentration, organization and permanency of purpose." These we find lacking in the child who is not up to grade, and these are the things we must strive to inculcate, for they are of more real value in after life than lessons from textbooks. He speaks also of the tendency to revert to type which is latent in all of us, a return to ancestral conditions—"It finds expression in love for change, the desire—sometimes overwhelming—to do 'something else.'" To overcome this we must develop the "willpower," and "self-control."

"While the desire to do 'something else' is always latent the desire to do nothing at all is perhaps more frequently in evidence," but "always to obey the dictates of interest would mean the instant arrest of all progress." Doris, a backward maiden of thirteen who needed much tutoring, said one day, "We wanted to go down to the auditorium and play a game, but Miss Sharp wouldn't let us." This is the attitude of many a child towards lessons, to get through them somehow, then play, or even play first. The desire and thought are on the side of the game.

Yet Mr. Bagley says, "It is safe to say that the point will never be reached when pain and drudgery can be entirely eliminated from the educative process." And should it be, since in after life we all have many disagreeable duties, which cannot be eliminated from our daily lives?

We have heard it said that the valedictorian of a class rarely makes a success in life. This may be true of those who simply memorize what is given, but it is not true of the boy or girl who bears highest honor because he or she has dug it out. The real worker or thinker is not going to fail by and by out in the world; he has learned to work. Carrying off high honors does not always mean that the bearer is especially brilliant, or that knowledge was easily attained. The child may have had to struggle for what he obtained. We are inclined to expect more of those with a high record. There was the boy with a high record in one high school class who runs a small coal-yard. Now, it is no disgrace to sell coal—we all need it—but some might sneer at that occupation for an honor student, as being not just what one would expect of him.

There is more real satisfaction to the teacher in bringing up to the standard a slow child who is trying to learn, than in dealing with those who think themselves "smart." The results may not appear great, but the final victory is a delight to parents, teacher and child, for the critical point being passed the child may keep in the upward path doing credit to his teacher.

A child loves novelty. The lessons that stand out most distinctly in my own mind after many years are the first I ever had in physiology, upon the bones, taught in a primary grade by means of a little poem. Then, too, there is a memory of the first drawing lesson in a real drawing book, a slate having been used previously. And that recalls the outside of that book and reminds us that teachers never know just how children are receiving the information given them; that is one reason they fail, because they do not comprehend.

This drawing book had "Boston, L. Prang," printed at the bottom. Now, of course, that is plain to a grown-up, but I read it as one name, thinking the man's name was Boston L. Prang. It was years before experience in punctuating was great enough for me to realize the mistake. To this day when I see the name of Prang it recalls Boston L. This is not unlike the story of a boy who learned the definition of the equator, then described it as a "menagerie-lion running around the middle of the world." Set the average child to reading a page of history or geography aloud and see how he jumbles and miscalls words, then wonder if he fails, never having caught the real idea.

There is much criticism of the examination method. It is going out of our lower schools, but is it out of our colleges? It is a fact that while promotion upon daily lessons is our ideal, there are children who shine in written tests who make a wretched job of a class recitation. Some are "scared stiff" when asked to recite, diffidence and shyness are often mistaken for sullenness and stupidity and poor preparation. Of course, ease in public recitation is a habit, but it is one which some never acquire, and a teacher who does not understand character will frighten away what little the child knows. Given a sheet of paper and a pencil they can express themselves.

Yet on the other hand there are children frightened by the very mention of an examination who cannot do as well as they do at recitation. The 75 per cent method properly conducted does away with much nervous strain for a majority of the school. Yet if we must have tests every few days we might just as well call them examinations. One of our schools promotes on the monthly work and the teachers' judgment; no examinations at the end of the term. But they have "tests" in every subject during the last week. Where's the difference?

Here is someone's opinion,—"The virtue of the examination lies in its power to *force* strenuous mental effort to the task of organizing a large body of facts and principles into coherent system.* * * They should be large and comprehensive, so formulated that they will bring out and exercise not the memory for details but the capacity to grasp large masses of knowledge and weld the separate facts and principles into systematic unities."

We cannot yet quite do as Gene Stratton Porter suggests in "Laddie," but we might make school work more attractive so we would need to bring fewer children up to grade. "Schoolhouses were made wrong. If they must be, they should be built in a woods pasture beside a stream, where you could wade, swim and be comsfortable in summer, and slide and skate in winter. The window-should be cut to the floor and stand wide open, so the birds and butterflies could pass through. You ought to learn your geography by climbing a hill, walking through a valley, wading creeks, making islands in them, and promontories, capes and peninsulas along the bank. You should do your arithmetic sitting under trees adding hickory nuts, subtracting walnuts, multiplying butternuts and dividing hazelnuts. You could use apples for fractions and tin cups for liquid measure. You could spell everything in sight and this would teach you the words that are really used in the world."

Wouldn't that be delightful, children and teachers?

DIFFICULTIES IN THE INTERPRETATION OF MENTAL TESTS—TYPES AND EXAMPLES.

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In the literature on tests, with a few exceptions such as Haberman's article on the evaluation of mental tests, criticisms, particularly of the Binet scale, have been made from the statistical standpoint. Many articles deal with the correlations between Binet findings and some other findings, such as the judgments of the teacher about the child, or the child's school advancement or retardation. In such studies discussion of peculiarities of the individual child's reactions to the tests is omitted; indeed, the human aspect of the examinee is entirely ignored or dismissed with a few general remarks. It is just this side of the problem that we have attempted to emphasize here.

Our plan in this paper is to give, first, a classification of the anomalous findings by tests, then typical records from case studies. We wish to emphasize that the cases cited are merely single illustrations of types which we find repeated over and over; that they are, in fact, examples of what one must expect to find in using tests. The group from which these cases are selected includes persons of almost all the European nationalities, as well as Americans. They range in age from the rare cases under 8 years of age to those of 18 years, the average being almost 16. The cases include delinquents and non-delinquents.

Classification of anomalous records showing types of test results and types of individuals making these records:

CLASS I. CASES IN WHICH RESULTS ON BINET TESTS COMPARED WITH RESULTS ON OTHER TESTS ARE DISCREPANT.

This includes cases which would grade higher by Binet than by other tests and those which would grade lower.

1. **Results on Binet tests proportionately better than results on performance tests.**
   a. *The verbalist type of defective.*—These cases often do better on Binet because of their language ability.

- b. *Individuals with good ability along rote lines, but poor apperceptive ability.*—This is presumably because Binet tests involve to a large extent information which most children acquire by rote memory, and only in a very few questions involve apperceptive ability.
- c. *Aberrational cases.*—The Binet tests often fail to give any indication of aberrational tendencies because they require so little in the way of control of mental processes.
- d. *Individuals with poor powers of concentration.*—Such cases often do better proportionately on Binet tests because these require no long continued effort.

2. **Results on Binet tests proportionately poorer than results on performance tests.**
   - a. *Foreign born individuals.*
   - b. *Individuals with some physical defect affecting language ability,* e. g., deaf-mute.

3. **Results on school work at variance with results on other tests.**
   - a. *Individuals with special disabilities for learning the usual school subjects.*
   - b. *Individuals whose abilities show distinctly better in learning the usual school subjects.*

4. **Results on one specific type of tests better than results on all other tests.**
   - a. *Defective with highly specialized abilities.*

CLASS II. CASES IN WHICH THE RESULTS ON THE SAME TESTS DIFFER WHEN THE TESTS ARE REPEATED AFTER AN INTERVAL.

This includes cases in which the results are better and those in which the results are worse on retesting.

1. **Results relatively better on retesting** (*i. e.* where the improvement is greater than the normal for the interval since the previous testing).
   - a. *Individual tested when in bad physical condition and retested after condition has improved.*
   - b. *Individual tested when in an unfavorable emotional state and retested in a favorable state.*
     - (1) Tested under unfavorable laboratory conditions.

(2) Tested when in a recalcitrant attitude. (Of course many other emotional moods, such as sorrow and fear, may interfere with fair testing.)

c. *Undisciplined individuals.*—These are children whose prior environmental conditions have been atrocious and who, consequently, have acquired no habits of concentration and self-control.

2. **Results relatively worse on retesting** (*i. e.* cases of dullness from dementia, bad physical conditions, depleting habits, etc.).

CLASS III. CASES IN WHICH THE RESULTS ON TESTS ARE NOTICEABLY IRREGULAR.

The term "irregular" implies that one test is done well, while another of the same type, which is no more difficult, is done poorly, and the fact that reactions to the same tests vary from day to day, and even from hour to hour.

1. **Results on all types of tests irregular.**
   a. *Epileptic cases.*—These often fail on easy and pass more difficult tests, fail on tests previously passed, and vary from one trial to another.
   b. *Cases of mental dullness from bad habits.*—Here, similarly, there are marked irregularities.

2. **Results vary from time to time.**

3. **Results on Binet tests show great irregularity** (sometimes a peculiarly distributed "area of irregularity").
   a. *Defectives (not of the usual type) whose irregularities are the result of failures on all types of Binet tests.*
   b. *Normal children who fail on all the questions of one type* (e. g., all involving information).

In order to make the following rather detailed case studies clear it seems necessary to give a brief description of the tests used. They include tests for school work, the Binet-Simon tests, the Healy-Fernald tests,[1] and other tests especially to gauge mental control. In all the cases cited the 1911 Binet-Simon series was used.

Introductory Test.—This is a combination of the test form board with the picture puzzle. The seven pieces are quite dissimilar in shape and have distinctive parts of the picture printed on them, two are nearly interchangeable, and two are right triangles which together fit into an equilateral triangle. These last two give a good opportunity for studying the subject's ability to profit by trial and error.

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[1] Tests for Practical Mental Classification. William Healy and Grace M. Fernald. Psychological Monograph 54 Psychological Review Pub. Co., Princeton, N. J.

The First Construction Test.—This is a wooden frame into which five pieces are to be fitted. While there are a number of possible positions into which the various pieces can be put into the frame there is only one possible correct position for each piece, although any four of them can be placed in a number of ways. This test involves the subject's perception of space relationships, and also shows his planfulness and ability to profit by past trials.

The Second Construction Test.—This involves the same mental elements as the first construction test. It is, however, more complex as there are many more alternative moves.

The Puzzle Box.—The purpose of this test is to bring out abilities or defects in manipulative power and the ability to analyze a slightly complicated physical situation. The box is fastened by a series of strings passed over posts which can only be unfastened in certain sequence. As one side of the box is glass, the entire arrangement can be seen and analyzed.

First Cross Line Test.—The investigator draws a large X on a sheet of paper in front of the subject, calling attention to the fact that the figure is made up of four compartments. These are then numbered, the order in which the numbers are placed with regard to the figure being emphasized and after the subject has had a good chance to look at the model, it is turned over. The different angles are drawn one by one and the subject is asked to tell what belongs in each. If he fails he is allowed to draw and number the figure himself and try again. This and the two tests following seem to involve the power of mental representation of the model together with the ability to analyze out its parts, and recall by visual memory, and perhaps by a definite logical process, the numbers corresponding to the parts.

Second Cross Line Test.—The procedure is the same as above except that the figure is the one used by children in the game of "Tit-tat-to," and is made up of nine parts.

Code Test.—By a combination of the two cross line tests a complete alphabetic code can be arranged. After the subject has studied the arrangement, it is turned over and he is given a sentence to write. Because of the greater number of parts to be worked out from the subject's recollection of the general scheme, this test is of great value in indicating the subject's ability to control his mental processes as well as his ability to grasp the idea of a code.

The Completion Test.—This test is a picture representing ten activities from which ten squares of equal size have been cut so that on each piece is a part essential to the meaning. There are forty more pieces on which are drawn objects that do not logically complete the picture. The subject is told to pick out the pieces that "make the best sense." The test brings out the subject's powers of apperception and has an added value in the fact that in psychosis cases the performance is often extremely erratic.

Substitution Test.—This test shows the ability of the subject to learn the arbitrary association of a set of symbols with numerals.

Memory Tests.—Two passages, one to test auditory verbal and the other to test visual verbal memory.

Aussage Test.—The butcher-shop picture is shown to the subject, who gives a free account and answers to direct questions.

School Work.—This includes reading and giving the meaning of a passage, writing from dictation, and arithmetic. The work is, of course, varied according to the age of the subject and the actual amount of schooling he has had.

Tapping Test.—In this test for psycho-motor control, the subject taps as rapidly as possible in half inch squares without touching the lines or missing the squares.

Kraepelin Subtraction Test.—This is the continuous subtraction test used to gauge mental control.

Opposites Test.—Here the subject is given a stimulus word to which he is to reply with the exact opposite. This should be a test for control, of association processes, but with our group of subjects it sometimes turns out to be a language test.

CLASS I. CASES IN WHICH THE RESULTS ON BINET AS COMPARED WITH OTHER TESTS ARE DISCREPANT.

1. Results on Binet tests proportionately better than results on performance tests.

a. *Verbalist type of defective.*

Case 1. G. I. Just 9 years. Girl. **Summary:** Physical condition good. The girl was brought to us because of incessant stealing. Judged by Binet tests alone this girl is found to be only a year retarded; nevertheless her work on other tests shows her to be feebleminded. She is noticeably lacking both in reasoning and in acquisitive powers, but her ability to use spoken language is sufficient to disguise her mentality when studied by tests which depend so largely on ability to use language.

Mental tests: *Binet tests*—failures; 7 years (1) knowing right and left, (2) describing pictures; 8 years (2) counting 20–0, (4) knowing date, (5) repeating numerals; 9 years (2) defining in terms superior to use, (4) naming months; 10 years (1) arranging weights, (2)½ copying designs, (3) detecting incongruities; 12 years (2) using given words in 1 sentence, (4) defining abstract terms, (5) rearranging shuffled sentences. Binet age over 8 2/5. *First construction test*—does this in 4′ 30″ with 42 moves. This is done very poorly as to time and in an exceedingly random method: the minimum number of moves is five. *Second construction test*—done in 9′ 40″ with 108 moves. As in the previous test, the number of moves shows the girl's complete failure to reason out the situation. *First cross line test*—failure in four trials. This is a poor result for a child of 9 years. *Substitution test*—done with one error, that is, fairly well. *Auditory memory test*—quite well done. *School work*—the girl cannot read. Cannot add 2 and 2. Her success with the two Binet questions involving arithmetic is due to their concrete form. The girl has had ordinary school advantages.

Case 2. F. E. 14 years, 3 months. Girl. **Summary:** Physical condition good. This case, like the preceding one, represents the verbalist type of feebleminded who cannot be adequately tested by Binet tests alone. When this girl was first examined, only the performance tests were used and she did very poorly indeed. A few days later she actually gets through three of the 12 year and 2½ of the 15 year Binet tests, although on all tests showing powers of mental representation she still grades extremely low, lower than many morons we have seen. On school work she shows this same verbal glibness coupled with a lack of any real comprehension; for instance, she reads a third grade passage well, but cannot give the meaning oi it.

Mental tests: *Introductory test*—5′ 45″; excessively slow with many trials. The triangles were done slowly with repeated errors. *First construction test*—2′ 39″ with 26 moves. This, too, is a decidedly poor record. *Second construction test*—failed. *First cross line test*—failed utterly, even the reproduction of the drawings was almost impossible. *Completion test*—7′ 50″ with 3 illogical errors. This is a very poor record both from the number of illogical errors and for the very long reaction time. *Substitution test*—2 errors. (At her age this should be done perfectly.) *Memory tests*—both of these were done very poorly, very few items were recalled and those in a rather incoherent manner. *Tapping test*—done slowly but accurately.

Mental tests (four days later): *Binet tests*—failures; 9 years (2) defining in terms superior to use; 10 years (2) ½ copying drawings, (3) detecting incongruities, (4) solving common sense questions; 12 years (4) defining abstract terms, but gets one correct, (5) arranging shuffled sentences, but does one of these. Successes: besides the three 12 year tests she readily passes 15 years (2) rhyming, (4) ½ interpreting pictures, (5) inferring facts from narrative. *First cross line test*—failed again. *Second cross line test*—failed. *School work*—does simple sums. Reads third grade passage fluently, but cannot give meaning. Writes and spells well.

The remarkable interest of this case lies in the fact that this girl does so many of upper year tests and yet ranges so low in her reasoning ability and in her work with concrete material.

b. *Individual with good ability along rote lines, but poor apperceptive ability.*

Case 3. I. D. Just 14 years. Boy. **Summary:** Physical condition good. Good home conditions, and school advantages very good; in fact the boy was examined because of his inability to profit by the opportunities in a higher school. He does all the tests which involve rote memory very well, but those involving reasoning he does very poorly; compare, for instance, the results on the second cross line test with those on the code test. His social reactions and conversation about himself and his plans show the same inability to reason things out. This boy represents the border-line cases of feeblemindedness; judged by Binet test alone he would be considered normal since he passes all the 12 year tests; yet he does miserably on the first construction test and on the completion test, in which memory ability does not help him. In this type of case the Binet scale has proved inadequate because the boy has ability along rote lines and his training has been such that he has been taught the necessary information.

Mental tests: *Binet tests*—gets through all the 13 year tests rapidly and easily. *First construction test*—6′ 30″ with 60 moves, 25 of which were impossible. This is an atrocious performance. A normal boy of 14 should do this in less than 1′ and in 10 or 15 moves at the most, with not more than a couple of impossible ones. *Second construction test*—1′ 10″ with 12 moves, but this was apparently by chance. *Second cross line test*—done on first trial, this good result being due to his memory power. *Code test*—could not grasp the idea! *Completion test*—7 errors, 5 being illogical. These were such ridiculous errors as substituting the football for the child's hat, and blanks for all the pieces. This is another exceedingly stupid performance. *Instruction box, substitution test, auditory and visual memory tests*—all well done. "*Aussage*" *test*—gave most of the details. *Memory span*—7 numbers. *School work*—shows the same contrast between rote work and that requiring reasoning. He reads well, but speaks poorly. Arithmetic very poor indeed, cannot even do long division.

Case 4. M. O. 13 years, 4 months. Girl. **Summary:** This little girl is definitely a moron in spite of her fairly intelligent expression. When we first examined her she did very poorly on all tests including school work. Later, after having been in an institutional school for a month, she shows marked improvement, but only along rote lines. She has made a great deal of progress in school work, having learned to read third grade passages (previously she could read a first grade passage only with great difficulty), to add and subtract, and to write simple sentences. Retesting her, we find that she has gained much in the more or less mechanical things, but she is still unable to cope with situations that require reasoning or analysis or even apperceptive ability. For instance, she fails completely on first cross line test even after numerous trials, and the results on such tests as the completion test are as poor as when originally done. She does succeed a little better on a few of the Binet tests, but is still 3 years retarded. On the whole, then, one would say that by dint of much individual attention, she has gained in rote knowledge; but that she gives no evidence of any greater ability in the solving of novel situations which require initiative and reasoning.

Mental tests: *Binet tests*—failures; 9 years (2) defining in terms superior to use, (4) naming months; 10 years (2) copying drawings, (3) detecting incongruities, (4) solving common sense problems; 12 years (2) using given words in one sentence, (4) defining abstract terms, (5) rearranging shuffled sentences. *First construction test*—2′ 16″ with 26 moves; a decidedly poor record. *First cross line test*—failed. *Completion test*—7 errors, all but 2 being illogical; this is an excessively bad record. *Substitution test*—5 errors in copying and 4 in reproducing from memory, another atrocious performance. *School test*—adds very simple combinations, cannot multiply. Reads very poorly.

Mental tests (next day): *First cross line test*—fails. *Substitution test*—done with only 1 error in the reproduction from memory. *School work test*—fails on all arithmetical problems.

Mental tests (one month later): *Binet tests*—failures; 9 years (2) and (4) ; 10 years (2)½; 12 years (4) and (5). *First construction test*—10″ with 5 moves, this, of course, merely shows her good memory. *Second construction test*—6′ 55″ with 44 moves. This is done slowly and in a random manner. *First cross line test*—failed. *Completion test*—9 errors, 6 illogical; an incredibly stupid performance. *School work*—adds and subtracts correctly and can "prove" her results. Has learned to do simple problems in multiplication. Writing and spelling unexpectedly good. Reads third grade passage easily.

c. *Aberrational cases.*

Case 5. W. D. 13 years, 6 months. Boy. **Summary:** No significant physical findings. The boy has been behaving strangely at home and his manner and conversation during the tests were most erratic. Though he seemed quite willing to do the work, he giggled in an uncontrolled manner and frequently broke off to tell us most passionately and bitterly how everyone hates him, especially his mother. Later we found that he had just written her a letter saying, "The sight of you would be heaven to me." This boy does all the 12 year Binet tests quite normally, but his work on other tests is very variable—typical of his aberrational tendencies. He fails on a test at one time and half an hour later does it very well. He fails on everything involving mental control and his elaborate fantastic explanations of his errors on the completion test are those we frequently get from psychosis cases. The feebleminded individual either fails to give any explanation or gives a very simple one which often does not take into account the pieces he has put in. It is evident to the examiner that the boy's failure on the first cross line test was due to his inability to control his mental processes sufficiently to recall all the parts correctly. In contrast to this, note how I. D., the border-line feebleminded case just cited, was able because of his good rote memory to do the second cross line test, but showed his poor reasoning ability by failing to grasp the idea of the code test. The only Binet test which might have showed up W. D's abnormality—the 60 word free association test—was done normally, so that on the basis of Binet tests alone this boy passes as normal, although it is plain from the other tests that he is not. He was diagnosed as an aberrational case, possibly dementia praecox.

Mental tests: *Binet tests*—does all the 12 year tests very well and all the 10 year tests except (2) the drawings. *First construction test*—failed in 5′. Half an hour later he does this very well in 14″

with 8 moves. *Second construction test*—makes 63 moves in 8′ 21″, then says, "I surrender." This also was done later in 15″ with 18 moves. *First cross line test*—done on fourth trial, showing the boy's lack of mental control. *Second cross line test*—failed badly on fourth trial. *Completion test*—makes 7 illogical errors, and even this very poor result was obtained after many moves. His explanations are also erratic. He substitutes the crying baby for the fighting chicken and tells us that "the other chicken is doing what the baby is," that, "the girl is showing the cat an empty cage to make it wild hunting the bird"—an explanation involving two unrelated groups. *Auditory and visual verbal memory tests*—done very poorly. *School work*—arithmetic poor.

(Three weeks later.) *Second cross line test*—still fails on fourth trial. *Completion test*—6 illogical errors. When urged to correct them changes two pieces which had been correct and insists, "there's nothing wrong now."

(Next day.) *Second cross line test*—still fails. Kraepelin test—done fairly quickly with 4 errors in subtraction by sevens. *Opposites test*—done fairly promptly with 2 errors. *Tapping test*—taps 70 squares with 0 error and 75 with 1 error, but when urged to speed up makes an excessive number of errors.

Case 6. G. I. 16 years 7 months. Girl. **Summary:** This girl is in rather poor general physical condition, and has very defective vision. Heredity is atrocious, the mother is insane and the father is a drunkard. At present she is regarded by her teachers as "peculiar." We felt unable to make an exact diagnosis of her mentality without her being tried out under better conditions. Certainly her mental processes are very erratic. One cannot doubt that she is at least on the border line of a psychosis. The Binet tests, however, give no indication of this instability, for there she does well, not only on the 12 but also on the 15 year tests. On the other hand she fails utterly on the Kraepelin test, even on the subtraction by fours. This same lack of power of sustained attention is shown in ordinary arithmetic, where in multiplying by eight, numerous errors are made in carrying. She multiplies each digit correctly when working orally, but the final result is entirely wrong.

Mental tests: *First construction test*—13″ with 5 moves, a very good record. *Second construction test*—7′ 41″ with 42 moves, a decidedly poor and slow performance. *First cross line test*—done on second trial. *Second cross line test*—failed. *Completion test*—6 errors, 4 illogical, a typically erratic performance. *Substitution* *test*—2 errors in copying, 6 in reproducing from memory, a significantly bad result. *School work*—fails on multiplication and long division, apparently because she cannot control her mental processes. *Tapping test*—77 squares in 30″ with 6 errors. Later 74 squares in 30″ with 6 errors. *Kraepelin test*—subtracting by sevens and by threes: very poor results.

Mental tests (three days later): *Binet tests*—does all the 12 year tests easily, and all the 15 year tests except (4) which was omitted. *Second cross line test*—(renumbered) correct on first trial. *Completion test*—4 errors, 2 illogical. *Substitution test*—0 errors. *Tapping test*—84 squares in 30″ with 30 errors! 80 squares in 30″ with 30 errors! *Kraepelin test*—by sixes and by fours, done miserably.

Case 7. J. V. 15 years, 1 month. Boy. **Summary:** Much enlarged tonsilar glands. No other morbid physical findings. This boy has held two "jobs", first as actor on the vaudeville stage, and afterwards as messenger boy for newspaper reporters; just the sort of work one might expect such a facile, unstable youth to choose. We note at once that he is an extremely glib and fluent talker,—indeed, his command of spoken language is so great that we realize that the Binet tests would offer no difficulty for him. As a matter of fact, he does all the 12-year tests as easily and with as much assurance as he talks, yet he fails outright on the easy first construction and the second cross line tests. His failures are all due to lack of mental control, the construction test, for instance, being done in a sort of frenzied hurry that precluded any but an accidental success. The only control test that was well done was the opposites tests, but even here again the boy's language ability aided him. The diagnosis was tentative, the boy is very probably an adolescent psychosis case, perhaps on the basis of bad habits, but possibly also he is a defective of the verbalist type.

Mental tests: *Binet tests*—does all the 12-year tests with the greatest ease and assurance. *First construction test*—failed in 5′. Done with nervous haste. *Second construction test*—done in 9′ 58″ with 82 moves, and with the same frantic haste. For a boy of his age, this amounts to a failure. *First cross line test*—correct on second trial. *Second cross line test*—failed. *School work*—knows the processes of multiplication and long division, but fails because of inaccuracies.

Mental tests (next day): *First construction test*—failed. *Second cross line test* (renumbered)—failed. *Completion test*—does very slowly and with 5 illogical errors, a thoroughly aberrational result.

Tapping test—60 squares in 30″ with 0 errors. On second trial taps 60 squares with 14 errors! *Kraepelin test*—3 errors in subtracting by sevens. *Opposites test*—2 errors, normal reaction time.

Individual with poor powers of concentration.

Case 8. P. K. Just 12 years. Boy. **Summary:** Good physical condition except for slightly defective vision and occasional headaches. This boy shows himself quite capable on any test not requiring prolonged attention, with the possible exception of the construction tests, which he does in a rather random fashion. He gets all but the first of the 12-year Binet tests and does the completion test correctly. On the other hand, although he plainly is thoroughly familiar with the process of long division, he cannot keep his attention on the task long enough to finish correctly. It was interesting to see the boy's work on these problems—after being urged to make a serious effort he would begin quite well but invariably after getting part way through his work he would make one very careless error after another and he finally failed to get one out of four problems. Since the Binet tests require only a succession of brief efforts they quite failed to show this boy's mental peculiarity, although it is one that may be most significant as an explanation of his reactions to school and vocational life.

Mental tests. *Binet tests*—failures, 12 years (1) judging lines. *First construction test*—done in 2′ 43″ with 30 moves. This and the next test were done in a random way. *Second construction test*—57″ with 51 moves. *First cross line test*—correct on first trial. *Second cross line test*—correct on second trial. *Completion test*—done in 5′ 44″ with 0 errors. This is rather a slow performance, but of course the time is only of minor importance. *School test*—fails to do one out of four long division problems correctly though he plainly knows the process. Reads and writes fairly for his grade—the sixth. *Kraepelin test*—subtraction by sevens very poorly done.

2. Results on Binet tests proportionately poorer than results on performance tests.

a. *Foreign born individual.*

Case 9. S. V. 16 years 1 month. Boy. **Summary:** Physical conditions, rather premature development. This boy has got in with a bad crowd and done a good deal of stupid stealing, and his explanations of this in court were very incoherent and slow-witted. His parents are Norwegian and the family speak Norwegian altogether at home, although the boy was born in this country. The officer reports that they are all very slow of speech. In conversation this boy seems to have the utmost difficulty to express himself. "Words fairly seem to rattle round in his head and his ideas never come out clearly." Quite as one would expect from this he does very poorly on the opposites test and on the Binet tests where all his failures, except one, involve language. But one sees here a striking difference between his poor work on these tests and his good work on the construction and cross line tests. His school work shows just this same difference; his arithmetic is fairly good—the boy is in the low sixth grade—but his writing is extremely bad. His Binet age is 10 years, so that by that criterion he would be considered a moron, but his work on performance tests is that of a normal person. We considered him to be of fair ability, except for language.

Mental tests: *Binet tests*—failures; 10 years (5) using given words in two sentences; 12 years (1) comparing lines, (2) using given words in one sentence, (4) defining abstract terms, (5) rearranging shuffled sentences. Binet age, 10 2/5 years. Even the 60 word tests which C. passes is done with several repetitions. All the failures except the comparison of lines involve language. *First construction test*—done in 20″ with 5 moves. *Second construction test*—done in 1′ 4″ with 12 moves. *First cross line tests*—done on first trial. *Second cross line tests*—done on first trial. *Completion test*—1 logical error. Done promptly. All these performance tests are distinctly well done. *School test*—does long division correctly. Writes poorly. Reads fairly well.

Mental tests (five days later): *Second cross line test*—(remembered) correct on first trial. *Code test*—3 errors and all dots omitted, but the boy admitted he was not trying. *Puzzle box*—quite well done. *Opposites test*—6 errors and 2 failures. This is an unusually bad record, but is quite in keeping with the boy's other language work. *Tapping test*—done normally. *School test*—cannot write simple sentence from dictation, though he makes an incomprehensible attempt.

Case 10. E. X. 10 years, 1 month. Boy. **Summary:** Physical condition, heart lesion and a number of stigmata. This boy is reported to be fairly bright in school "when he wants to work." From his work for us we should hardly agree to so much brightness, but we will vouch for the lack of perseverance and concentration implied in the teacher's comment. We noted his slouchiness, and that he was very easily diverted from his work. His test record shows the same tendencies; for there he grades almost up to age on Binet, although his work on all tests requiring continued effort is on a much lower level. Very probably he will turn out to be subnormal and his development will not go much further.

Mental tests: *Binet tests*—failures; 9 years (4) naming months; 10 years (1) arranging weights, (2) copying drawings, (5) using given words in two sentences. Binet age 9 1/5. *Introductory test*—failed on triangles after 5′. *First construction test*—failed in 6′. The boy's form perception is so poor as really to amount to a specialized defect. *First cross line test*—done on third trial. *Second cross line test*—done on second trial, but only after a number of unsuccessful attempts to draw the figure from memory. *Completion test*—done rather slowly with 3 errors, 1 illogical. *School work*—all very poor. Reads second grade passage stumblingly. Can only write his name. Fails on such problems as 16 minus 7 and 12 plus 8. Even if we rule out the work on construction tests as due to a specialized defect, the results on all these other tests are much worse than one could expect from the results on Binet tests.

b. *Individual with some physical defect affecting language ability.*

Case 11. F. Z. Just 17 years. Boy. **Summary:** Physical condition, completely deaf since 5 months old. Since the boy had had only a few months' training at a school for the deaf, he does not talk and does not know lip reading, and has not been taught to read and write. Of course Binet tests were out of the question, but we were easily able to demonstrate by performance tests that the boy was normal and a suitable case for a school for the deaf. In such a case negative results could not be considered of much value, but the positive results were as valuable in this case as in any other.

Mental tests: *First construction test*—done in 14″ with 7 moves. *Second construction test*—done in 1′ 26″ with 17 moves. Both these tests are done quickly and by a very rational method. *Puzzle box*—1′ 24″ with 2 errors, a good performance. *First cross line test*—correct on second trial. *Second cross line test*—correct on third trial. These two tests are only fairly well done. *Completion test*—2′ 37″, no errors. *School test*—adds a single column of numbers.

Case 12. B. E. 15 years, – months. Boy. **Summary:** This boy is a case of otitis media with varying hearing conditions. When we saw him, he could barely hear a low voice at 10 feet. His general physical condition was poor; weight only 91 pounds, height 4 feet 11 inches. Says he suffers much from headache. Is only in the third grade in school, but has been out much. This boy grades very low on Binet tests, but his work on performance tests is good, and so is his work on all the Binet tests that do not involve language. Thinking that the boy might not have understood because of his deafness, a definite effort was made to get him to do better on the language work. For instance, the incongruities were read to him while he read them for himself. Even with this help, he still did very poorly; he failed on repeated trials to give 60 words in 3′, and did the shuffled sentences only with the greatest difficulty. However, we necessarily concluded that his Binet record was not significant since it is almost certain that the boy's language sense has been dulled by his inability to hear things. Probably because of the constant irritation arising from this, it was even difficult to get him to co-operate on work requiring verbal answers. While the Binet tests failed to measure this boy's innate mental ability, his response to them does give some clue concerning his probable reaction to many social situations, but his mentality must be judged by other tests.

Mental tests: *Binet tests*—failures; 9 years (2) defining in terms superior to use; 10 years (3) detecting incongruities, (4) solving common sense problems, (5) using given words in two sentences. *First construction test*—32″ with 13 moves, a good record. *Second construction test*—1′ 26″ with 22 moves, also well done. *First cross line test*—correct on first trial. *Second cross line test*—correct on second trial. *Completion test*—1 logical error. *Substitution test*—no errors. All these performance tests, with the possible exception of the second cross line test, are very well done. *School work*—adds simple sums correctly, but fails on simple multiplication. Writes only shorter words and reads third grade passage with difficulty, but refuses to give any account.

Mental tests (next day): *Binet tests*—failures; 10 years (3) read all these sentences, but only succeeded on one out of five; failed badly on all the others, (4) and (5); 12 years (2) using given words in one sentence (later this was done correctly), (3) giving 60 words in 3′, (4) defining abstract terms.

3. Results on school work at variance with results on other tests.

a. *Individuals with special disabilities for learning the usual school subjects.*

Case 13. H. C. Just 10 years. Boy. **Summary:** This boy was sent to us from an institution because of his failure to learn in school. He cannot read, cannot write the simplest words from dictation, and cannot add more than two digits. We found him to be rather an intelligent little boy, much interested in his own problem. He co-operated most willingly on tests and even offered his own explanation of his difficulties. By Binet tests he graded up to age, and did equally well on performance tests, but though the results on these two groups of tests agree, they differ strikingly from the results on school tests. This boy has had a good deal of individual instruction from interested teachers, so that the discrepancy is a significant one from the standpoint of reading and arithmetic in our modern life. Can an individual be considered normal who is incapable of acquiring these things under at least fair conditions; on the other hand, can he be considered subnormal if he is capable of passing all the other "mental tests"? The boy was in good condition physically, and showed no aberrational symptoms. Though his home conditions were bad they had not been such as to keep him out of school. Because of these conditions he was sent to a family in the country, with some recommendations as to possible methods of teaching him. However, he was sent too recently for any result to be repeated.

Mental tests: *Binet tests*—failures, 8 years (4) knowing date: 9 years (4) naming months. He does all the 10 year tests correctly. Fails, 12 years (3) saying 60 words in 3′, (4) defining abstract terms (5) re-arranging shuffled sentences (but he cannot read these). Binet age, 10 years. *Introductory test*—done in 2′ 57″ by trial and error. *Second construction test*—2′ 49″ with 22 moves, done thoughtfully. Some trial and error, but no repetition of errors. *First cross line test*—done on second trial. *Second cross line test*—done on second trial. This is a good result for his age. *Completion test*—3 illogical errors, but not a bad performance for 10 years. *Substitution test*—done quickly with no errors. *School test*—he does simple sums such as 7+3, but he adds 3+8+5+1 on his fingers. Adds a quarter, a dime, a nickel and two pennies. Cannot tell what 1/3 of 9 is, but says that if you were going to divide 9 apples among 3 boys each would get 3. In fact, he does distinctly better when told not to do things the school way, but to use his common sense. H. C. cannot write words dictated to him, but offers to write a few which he does know because he has practiced them over and over again, He puts down run, nam (man), care, ayn (and).

Mental tests (five days later): The child told us that he thought his trouble was that he didn't remember, so to test his *remote memory* he was asked to do the following. The first construction test he completed in 28″ with 10 moves; much better than his first effort, but he did not remember absolutely. He failed to reproduce the first cross line drawing, but drew the second after one failure.

Drew the first of the 10 year Binet drawings. Gave a good account of two auditory verbal memory passages read 48 hours previously. *School work*—he writes a few new words which he has learned and writes out the table of threes, but this is really done by putting down the problems and then adding on his fingers.

Case 14. W. E. 13 years, 5 months. Boy. **Summary:** This boy, also, is an educational problem; he is unable to read well even a first grade passage, and is equally poor in the handling of numbers. He has been in the first and second readers for about six years. In spite of this, he does very well on all tests except the fourth and fifth of the 12 year Binet tests. The only notable feature is his very poor rote memory; he does much better with logical material.

Mental tests: *Binet tests*—failures; 12 years (4) defining abstract terms, (5) rearranging shuffled sentences. Of course inability to read affects this result. *First construction test*—1′ 15″ with 21 moves. *Second construction test*—1′ 13″ with 16 moves. *First cross line test*—done on first trial. *Second cross line test*—done on second trial. All these four tests done either fairly or very well. *Auditory verbal memory test*—done well. *Memory span*—five numerals. *Substitution test*—6 errors, an exceedingly poor record. *School work*—cannot add four digits; fails 5 plus 8. Writes extremely poorly. Reads first grade passage very poorly and utterly fails on second grade passage. *Tapping test*—61 squares in 30″ with 1 error; 63 in 30″ with 3 errors. *Opposites test*—1 error in first list, 4 errors in second; prompt reactions.

In this case again, feeblemindedness cannot be considered if we go by the scale of Binet, which, however, does not bring out the essential peculiarities of the case. Scholastically the boy is very defective, and naturally social judgment is largely based on just those attainments which he lacks. The correct diagnosis is that the boy is defective along special lines.

b. *Individuals whose abilities show distinctly better in learning the usual school subjects.*

Case 15. C. P. Just 15 years. Girl. **Summary:** This case scarcely needs any commentary; it is given merely to show that we find cases which do much better on school tests than on other tests, as well as such cases as H. C., just cited, where we find the reverse. This girl has had rather poor educational advantages, yet her school work is well up to her grade, the fifth, while her work on other tests is that of a moron. We must add that the girl does not give the impression from her conversation and reaction to commands of being an out-and-out defective. Her mother is insane and it is possible that the girl herself is aberrational, although her test work shows none of the irregularity so common to the work of that class of cases, but is merely consistently poor.

Mental tests: *Binet tests*—failures; 9 years (2) defining by terms superior to use, (4) naming months; 10 years (2) copying drawings, (3) detecting incongruities, (4) solving common sense problems; 12 years, all. Binet age, 9 years. *Second construction test*—5′ 45″ with 44 moves; also an extremely stupid attempt with repetition of many impossibilities. *First cross line test*—failed. *Completion test*—10′ 36″ with 4 errors, 3 being illogical. This is very poorly done both because of the illogical errors and because of the very slow reaction time. *School work*—does long division well, knows the process thoroughly and does the problem with only a careless error in subtraction at the end. Tells the price of 5 oranges at 60 cents per dozen. Reads a third grade passage easily and gives a good account of it. Inadvertently, she was not given a fifth grade passage.

4. Results on one specific type of tests better than results on all other tests.

a. *Defective with highly specialized abilities.*

Case 16. N. E. 13 years, 5 months. Girl. **Summary:** Vision, right and left 20/40. No other significant physical findings. This girl does as well as any bright normal girl on all the construction tests, but plainly shows by her work or the other tests that she is feebleminded. In this instance the value of using the performance tests as well as the Binet system lies in the possibility of making a constructive recommendation as to the training from which she is best able to benefit.

Mental tests: *Binet tests*—failures; 8 years (1) comparing objects, (2) counting 20–0, (4) knowing date; 9 years (2) defining in terms superior to use, (4) naming months, (5) solving common sense problems; 10 years, (1) arranging weights, (3) detecting incongruities, (4) solving common sense problems, (5) using given words in two sentences. Binet age 8 years. *Introductory test*—done in 50″. Did the triangles in 10″. *First construction test*—17″ with only 6 moves. *Second construction test*—55″ with 13 moves. These three construction tests are done excellently both for time and number of moves. *First cross line test*—failed on fourth trial. *Completion test*—8 errors out of a possible 9, only 2 being logical.

This is a very poor result even for a defective, and her explanations of her errors are also very silly. *School test*—reads only the simplest words. Can barely write. Fails to add 2+5 or 6+7.

Case 17. D. T. 11 years, 6 months. Boy. **Summary:** Physical condition good, except for an old head injury. This boy's work is poor on all types of tests, except the construction types where he does fully as well as any normal boy of his age.

Mental tests: *Binet tests*—failure; 7 years (4) giving value of stamps; 8 years (2) counting 20–0, (4) knowing date, (5) repeating numerals; 9 years (2) defining in terms superior to use, (4) solving common sense problems; 10 years, all. Binet age 7 4/5. *Introductory test*—2′ 59″. The triangles were done in only 15″. *First construction test*—58″ with 13 moves. *Second construction test*—1′ 13″ with 14 moves, *i. e.* only 3 more than the minimum. *Puzzle box*—2′ 6″ with only 3 errors. Compare the very good work on these tests with the boy's Binet record, which shows him almost four years retarded, or with his work on the completion test where two-thirds of the situations are not understood. *First cross line test*—correct on third trial. *Second cross line test*—failed. *Completion test*—6 errors, 4 illogical. *Substitution test*—7 errors out of a possible 10. This is an unusually poor record, even for a feebleminded boy. *School work*—can not read a first grade passage. Can only add 1 plus 1. The boy has been truant a good deal, but, of course, not sufficiently to account for such a miserable performance as this.

(*To be concluded*)

NEWS AND COMMENT.

Opportunities for Vocational Education.

An investigation has just been completed by the Public Education Association, which promises to be a great aid to the advocates of vocational training in this city. The Association has collected data in regard to vocational courses taught in all of the schools, public, private, and philanthropic, in the vicinity, and the results have just been published in a pamphlet under the title, "A Survey of Opportunities for Vocational Education in and near Philadelphia."

The scope of the investigation includes industrial, commercial, and professional education, and 180 institutions are covered by the survey. The material has been carefully classified and analyzed, and arranged in chart form, so that the student desiring information in regard to a particular course can at a glance compare the requirements, the tuition fees, and the time required, in the various institutions offering such a course.

A carefully arranged index at the back of the volume, lists over 250 subjects having a vocational bearing, taught in the institutions included, with references to the pages on which more detailed information regarding them may be found.

This study, which was compiled by Miss Jane R. Harper, special investigator for the Public Education Association, represents the first attempt to bring together the great mass of information in regard to vocational education in Philadelphia, and presents in understandable form material which should be of the greatest help to parents and teachers, to vocational counselors, and to students seeking courses of training for their chosen line of work.

Philadelphia Board of Education assumes Administration of School Lunches.

The School Lunch Committee of the Home and School League of Philadelphia disbanded in June after an existence of nearly eight years. During this period its work has been that of experimentation and demonstration. It has established lunches in the elementary schools of this city, administered them successfully, demonstrated that they can be self-supporting, and it has now issued a final report in which the results of this extended experiment are made available for use by others.

The School Lunch Committee has voluntarily transferred its activities to the public school authorities of this city. At the May meeting of the Board of Education the report of the committee was accepted, its recommendations adopted, and the superintendent of schools authorized to extend elementary lunch service immediately to twenty-five additional schools.

The committee has carried on its work and is now terminating it because it holds that the function of a privately supported organization is to experiment and demonstrate. It never can eventuate on a large scale and it should not if it could. The function of a publicly supported organization is to eventuate on a large scale. It can seldom experiment and it lacks freedom and flexibility in demonstration. The School Lunch Committee has experimented and demonstrated successfully. It is a source of profound satisfaction to its members that the public school system is now taking over its work, continuing it, and extending it.

A College for Teachers at Johns Hopkins University.

Another step towards a teachers' college in Baltimore was taken in the recent creation of the degree of Bachelor of Science in Education, by the Johns Hopkins University. This marks a partial fulfillment of hopes which the University has entertained for a number of years. As early as 1910, the University announced its desire of establishing a department for the higher training of teachers as an organic part of the University.

The curriculum leading to the new degree will be based on the College Courses for Teachers and the Summer Courses. The former, which were established in 1909, are conducted during the regular session in the afternoons and on Saturdays. The latter have been conducted since 1911. The new degree will be open to men and women on equal terms. The regulations concerning matriculation and the curriculum will be determined by a special advisory committee of the faculty. The title of director of these courses has been assigned to Professor Edward F. Buchner, who organized and has conducted both these branches of the University's activities.

Pennsylvania Conference of Charities and Correction.

All persons interested in social welfare work in Pennsylvania are cordially invited to attend the state Conference of Charities and Correction at Scranton, October 21, 22, and 23, 1915. The program is of the best, and includes such able speakers as Hon. Thomas M. Osborne, of Sing Sing, N. Y., on Prisons; Miss Julia Lathrop, of the Federal Children's Bureau, on Public Health; and Dr. William T. Healy of Chicago, and Judge Raymond MacNeille of Philadelphia, on Juvenile Court Work. For hotel accommodations and additional information, apply to Mr. Maurice Willows, assistant secretary of the local committee, 346 Adams Avenue, Scranton, Pa.

The Psychological Clinic

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VOCATIONAL GUIDANCE IN THE HIGH SCHOOL.

By G. W. Gayler,

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Four years ago one hundred and fifty-nine eighth grade pupils in our schools were asked among other things to give their choice of a life work. In classifying and summarizing the answers we found that there were thirty-seven different occupations mentioned. Among these were the following:—farmer, forester, cigar maker, wireless operator, teacher, physician, nurse, musician, lawyer, chemist, cartoonist, stenographer, bookkeeper, draughtsman, contractor, telegraph operator, carpenter, milliner, aviator, mail clerk, hotel clerk, inventor, merchant, soldier, civil engineer, mechanical engineer, electrical engineer, etc.

By grouping these we found that 26 per cent chose commercial and industrial occupations, 23 per cent chose professional work, and 24 per cent chose pursuits so difficult to classify that we placed them in a group which we called miscellaneous. Twenty-seven per cent indicated that they had made no choice.

At the beginning of the next year (Freshman year) all members of this class still remaining in our school, ninety-eight in all, were asked the same question and the answers were tabulated as before. During the interval of one year 66½ per cent of the pupils who were yet in school indicated a change of mind with regard to their choice of a life work. The remainder, 33½ per cent, expressed themselves the same as before, *i.e.* they remained fully decided in their first choice or they remained wholly undecided in the matter.

In October, 1914, a further study of the same class now reduced to seventy-three showed that 47 per cent of those remaining had changed since the question was first asked them. A large percentage of those remaining constant in choice remained in school while a large percentage of those changing had dropped out of school.

A few days ago this same question was submitted to the members of this same class for the fourth time. Fifty-two per cent of those remaining in school the entire four years had not changed their minds concerning their choice of a life work. Twenty-three per cent changed once and 12 per cent changed twice; 13 per cent changed three times or more.

This study, extending over a period of four years and as yet incomplete, seems to point toward several conclusions. First, a large percentage of adolescent boys and girls do not definitely decide upon their life work until late in the high school course, perhaps often not until after the course is completed. Secondly, a large percentage of these students vacillate, now choosing one thing and now another, influenced often by the most interesting thing at the time the choice is made, perhaps influenced often by the personality of a popular teacher, or by the subject of study with which the mind is filled at that particular time. Thirdly, there is a greater school life expectancy for those who remain constant in choice than for those who change.

It is interesting at this point to follow the amount of change in the enrolment of a given class through a number of years and to see, as far as possible, what relation there is between the migration of families and remaining in school. In the case of this class there were one hundred and fifty-nine enrolled the first year in the eighth grade, ninety-eight the second year, seventy-three the third year, and fifty-six the fourth year.

This does not mean that all who dropped out of this class have remained out of school permanently. Although unable to check all pupils we know that a large number moved out of our district and we have good reasons for believing that many of them continued in school, at least for a time after moving. Nor does it mean that the present Junior class in our school has only fifty-six pupils in it. We have had additions due to families moving into our district so that at the present time the enrolment is seventy.

Last year in connection with our annual school survey we gathered data concerning the place of birth of all children enrolled in the schools. We also secured the place of birth of all parents attending school. We found that 53 per cent of our pupils were born outside of our school district. Many of them had made several moves before coming to our city. We found further that 82 per cent of the parents were born outside of our district. The migratory instinct is strong in us yet.

The relation of changing schools to choice of a life work is shown by the fact that a large percentage of those pupils who are constant in their choice remain in school while a large percentage of those who change schools, or drop out of school altogether, are not constant in choice of life work. Social and economic conditions which make it necessary for the family to remove from district to district affect the choice of a life work and consequently are factors to be considered in vocational guidance.

In addition to the factor of change there is another which must be considered in any study of vocational education and especially vocational guidance for the smaller cities, villages, and rural communities. This is the opportunities offered in the local community, and whether these vocational opportunities are purely local or whether they are general in their nature. If migration from community to community is so great, will it pay to give time and energy to the consideration of merely local occupations? Should pupils be encouraged to undertake to prepare themselves for purely local pursuits? Should they be directed into such pursuits as cigar making, stone cutting, tinning, dairying, etc.? The child who moves from place to place may not get the opportunity of engaging in his choice of work if his choice is a purely local pursuit.

In order to attack this problem we compiled a list of the occupations of the fathers of the children in our schools. We found that there were one hundred and twenty-one (121) different occupations listed. The list varied from farmer, factory worker, and miner, to scavenger, bartender, and pool room proprietor. Only in three occupations did we find a large number engaged. These were farmers (126), factory workers (319), and miners (379). The opportunity for employment is a negligible quantity in our community outside of these three occupations.

Again many of these are pursuits in which there are few opportunities for advancement. Many are "blind alley jobs." There is little chance for promotion. In the small city there is little opportunity for guidance into local pursuits which have a wide future outlook. Should children be guided into "blind alley jobs"? Shall they be guided into jobs in which the work is irregular, the promotion slow and uncertain, and at best the highest place soon reached? The answers are not yet in sight.

I am fully convinced from the study I have made that the kind of guidance we need in our schools today is that which will lead boys and girls into higher grades of school work and the advice they need most is that which will cause them to remain longer in school.

I am further convinced that what we as superintendents, principals, and teachers need most is that guidance which will help us so to shape the course of study, and so to manage the school, that students will regard the school as of so much value to them that they can not afford to remain away. What we need is that knowledge and ability which will help us to guide children forward in their school work faster and further. The question of vocational guidance, in so far as the schools ought to deal with it, is concerned largely with the retardation and elimination of pupils, with the abridgment and enrichment of the course of study, with the vitalization of the subjects already in the course, with the management of the school and with the spirit of the teaching force.

Every school system should collect a body of facts concerning the local educational situation, such facts to be used for determining educational policies. No school can do efficient work for the community which supports it, without these data to guide and direct the management. For too long a time we have been content to let tradition dictate our management. We have taught the same school our fathers have taught and used the same methods our fathers have used.

Among the many things which can be done by the school to guide the boys and girls into a better life as well as better places in life, is a full and complete study, continuing from year to year, of the age and grade of children with special emphasis upon the number behind the normal grade and the cause of it. This should include a rather complete study of the physical condition of children, sanitary conditions of school buildings and health conditions in the home. It should include a study of failures in school and the cause of these, the number of withdrawals and the cause of each. Going along with this there should be as full a study as possible of what children do after withdrawing from school. A fund of information local in its nature will help the teacher to handle children in school and to hold them in school longer.

The pupils should be encouraged to create, cherish, and foster ideals. No one thing has more effect on the future life of children than this. The teacher, like Agnes in David Copperfield, should always be pointing the way upward. This is the best thing the teacher can do. In my own life nothing has helped guide me so much as the ideals formed by contact with men whom I admired, and by reading biographies of great men. Ideals presented in great selections of literature have inspiration for the student if properly presented by the teacher. Talks by the teacher, principal or superintendent on the value of education, financial and cultural, given to the school as a whole, or to individuals, discussions concerning different vocations and opportunities will help pupils to understand the value of the school to them, and the aid which it attempts to give each student.

Children in the lower classes should get acquainted with the work in the higher classes. It is entirely in order to take the time of any class to explain and discuss with the children the work of the high school and how it helps in the work of the world. In these discussions the teacher can get the viewpoint of the children. Visits to different departments can be made by pupils and oral reports of work visited can be given to the class. This is good oral theme work for English classes.

Finally, the question of vocational guidance in so far as the high school ought to deal with it, is concerned with the abridgment and enrichment of the course of study. The course of study must be vitalized. It must touch life at more points. It must appear worth while to boys and girls. Vocational guidance has to do with every subject of study and every recitation. It is not a *new subject* to be brought into the course. It must not be handled by a *new* teacher added to the corps. It should vitalize every subject and every lesson.

So much of our work, especially our high school work, is not adapted to the life of today—is traditional, memory work—that students seeing the uselessness of it, refuse to give their time to it. Put yourself in the place of the ordinary sixteen-year old boy who belongs to the 95 per cent who are going to plow corn, lay brick, build houses, punch holes in a piece of iron in a factory, or act as brakeman on a train, and see what value you would get from the study of Latin, or ancient history, or geometry, or botany, or for that matter any one of the many things offered in our high school course of study. Put yourself in *his* place with *his* choice of life work and *his* prospect ahead and see how much of the dry, mechanical, memory work, appeals to you.

It is not a question as to what *we think* about these subjects. We may think they are very much worth while. We cannot impose our standpoint upon him. What *he* thinks counts. It may be it ought not to do so, but it does. How will this course help him? He does not see that it will. I do not see how some of it will, do you?

Vocational guidance has to do with the *kind of work* offered in school, with the *way work is done* in school, with the inspiration breathed by the teacher into her class, with the advice which she gives when the boy comes to her with his problems. Every teacher should be a counsellor. Every teacher must be interested in boys and girls, far more interested in these than in Latin, or history or science or literature or any subject whatever. It is not a subject to be thrust upon one teacher as we have been doing with

Latin, history, etc. This counselling with boys and girls is the vital work in teaching. Too long we have been concentrating our attention on subject matter, forgetting that we are teaching boys and girls, not subject matter. The only excuse the public school has for existence is that it helps boys and girls to solve life situations the better for having had the advice and experience of school life. The vital thing in life is the solution of situations. The main purpose of the schools is to help boys and girls to get ready to solve these situations correctly. Does the high school help?

One of the things which will be very helpful in vocational guidance is to study boys and girls in a sympathetic way, viewing things from their standpoint not from the adult standpoint, and not from the standpoint of the college, or the college man. Going along with this, and it may be included in it, is the fact that every teacher should have the missionary spirit. In the past we have often been content to take the children who come to us, without considering the ones outside the school, those who have no inclination to come. The missionary spirit reaches out after those who are not coming under the influence of the school. It is interested in seeing that those who are in school are enthusiastic about the work. It is not interested so much in a *high standard for the few as in higher standards for the many.* This leads to the personal touch and to inspirational work. Perfunctory work dwarfs and kills. Inspirational work gives life. We have been so wrapped up in certain pages of subject matter, we have been so concerned about finishing the assignment—finishing the book—that we have had no time for talk about the things of vital concern around us. It would be amusing, if it were not pathetic, to see how concerned teachers are about finishing pages, all the time neglecting the vital issues in which children are interested.

In conclusion then let me say that there is a place in high school for vocational guidance. We ought to have more of it, but it should come in largely through the regular work and in many places, rather than in one place through one teacher teaching the particular subject. *Every subject, every lesson* has in it great possibilities. Every teacher is and must be a counsellor and guide of youth.

DIFFICULTIES IN THE INTERPRETATION OF MENTAL TESTS—TYPES AND EXAMPLES.

By Frances Porter, A.B.,

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II

Class II. Cases in which the Results on the Same Tests Differ when the Tests are Repeated after an Interval.

1. Results relatively better on retesting.

a. Individual first tested when in bad physical condition and retested after physical condition has improved.

Case 18.[*] V. C. 16 years, 2 months. Boy. **Summary:** When this boy was first tested he was in bad physical condition; very poorly developed, undernourished, and very tired and listless. He had been smoking excessively. The tentative diagnosis was dull from physical causes. He was placed on a farm and was next tested after seven months of farm life. Although still very small for his age, he was then vastly better. His color was good and he had quite lost his listlessness. This time he did well on the tests and would be diagnosed as of at least normal ability. The improvement is made, as one might perhaps expect, in those tests which require a more sustained effort and where there is not the stimulus of handling concrete material; the reason, undoubtedly, is that the boy's former poor results on these tests were due, not to any lack of innate ability, but to a lack of sufficient vitality and energy to make use of his ability. This is one of the very important types of cases in court work where so large a proportion of the children come from ignorant and poverty stricken families, and consequently live under poor hygienic conditions and without the proper medical care. With such cases there is no other possible diagnosis than a tentative one.

Mental tests: *Introductory test*—2^{m} 45^{s}. Triangles—1^{m} 48^{s}. This is a decidedly poor result for a boy of 16. *First Construction test*—2^{m} 16^{s}, with 28 moves. This also is a poor result. *Second construction test*—1^{m} 26^{s} with 15 moves, a good record. *First cross line test*—done on first trial. *Second cross line test*—done on third trial. A normal child of eight generally does this on the third or fourth trial. *Substitution test*—3 errors in the reproduction from the model; 5 errors in the reproduction from memory. This is noticeably poor. *School work*—reads fairly well. Arithmetic and writing both very poor.

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[*] Case 10 in part I should have been case 9 under the heading "Individuals with poor powers of concentration" (p. 151); and case 9 should remain under its previous heading, but be called case 10.

Mental tests (seven months later): *Binet tests*—does all the 12 year tests correctly. *First construction test*—1^m with 6 moves. *Second construction test*—2^m 40^s with 16 moves. *Second cross line test* (renumbered)—done correctly on first trial. *Substitution test*—done promptly with no errors in either reproduction. *Completion test*—3 errors, none illogical.

b. *Individual tested when in an unfavorable emotional state, and retested in a favorable state.*

(1) Tested under unfavorable laboratory conditions.

Case 19. F. T. 17 years, 8 months. Girl. **Summary:** The interview with this girl, who came in with a prior diagnosis of feeble-mindedness, was begun by way of a conversation about herself and her brother and their home life. The tests were introduced after talking to her about the kind of work she intended to do. When later the examiner praised her for doing well on the tests, she suddenly looked up and said in a very naïve way: "Isn't it funny that I'm not a bit afraid of you and I was so scared the other day with that other lady." When asked why she had been so frightened she said, "Well, that doctor, you know, a large man, sat right there and stared at me. That made me nervous. I got so embarrassed I guess I really did act like a fool. I don't know what I did say. Then two ladies came in and once when I answered some question I saw the lady that was talking to me look at them and laugh. After that I got mad and did not try. I just felt like I did not want to say anything."

After she had given 60 words in a little over 2^m and had been told she had done well she said, "I'm glad you think I can do something because I only gave 25 words the other day. Oh, I know because I saw her write it down. She had the paper right there where I could read it."

She was greatly pleased at being told she had done quite well because at the end of her other examination her probation officer had told her that she had the mind of a little child.

Mental Tests: *Binet tests*—does all the 12 year tests easily. *First construction test*—20^s with 8 moves. *Second construction test*—1^m 18^s with 14 moves, both good records. *Second cross line test*—done on first trial. *Completion test*—only two errors, both logical. *School work*—fairly well, only. All the results, except on school work, distinctly good.

(2) Tested when in a recalcitrant attitude.

Case 20. W. A. 12 years, 4 months. Girl. **Summary:** This case illustrates how completely the results on mental tests may be distorted by the deliberate attitude of the person examined. In this case, the attitude was not induced by the experience of being examined, but was instead an anti-social attitude of long standing. The girl gave no sign of her frame of mind, so that it was not until she did so well on the later examination that it could be discovered that the first results were entirely worthless. Both times the girl's physical condition was rather bad—poor nutrition, and vision only 20/60. The mother was said to have no control over this girl or over her subnormal older brother. This brother bullies W. at home and she, in turn, bullies the younger children at school. She has a very determined will and a fiery temper when she does not have her own way. She had got into a great deal of trouble at school, and, largely because of her unmanageableness, was put into the subnormal room. The first time we saw her she had been sent from the court to be tested before going to an institution; the second time was just after she had been released from it; released, not because of a court order but because she had successfully followed out her own plan of being so unruly and so stupid that she could not be kept. Naturally, she was in high spirits and very affable with the examiner. As a result her Binet age was changed from 9 3/5 years to 12 years in an interval of 5 months, and her work on other tests bears out her work on the Binet tests. A couple of months later she is reported as doing very well in the same school in which she had previously been so obstreperous.

Mental tests: *Binet tests*—failures; 10 years (1) arranging weights, (2) copying design, (3) detecting incongruities, (4) solving common sense problems; 12 years (1) using given words in one sentence, (4) defining abstract terms, (5) rearranging shuffled sentences. *Introductory test*—done poorly. *School work*—done very inaccurately.

Mental tests (five months later): *Binet tests*—does all the 10 year and all the 12 year tests quickly and easily. *First construction test*—she began this rather at random, then took out all the pieces and finished with good foresight in 1^m 24^s. *Second construction test*—45^s with 12 moves (11 being the minimum possible number of moves). *Kraepelin test*—here she shows poor mental control, making 3 errors in subtracting by sevens and later 7 errors in subtracting by threes. *Opposites test*—this, on the other hand, was done very well, with no error and the range was 1^m 2^s.

c. *Undisciplined individual.*

Case 21. A. J. 11 years, 3 months. Non-delinquent. **Summary:** Father and mother divorced. Earlier the father was very cruel to him. The mother has worked and the boy has been away from her in a number of institutions and on a homestead. She thinks that he has been to school, altogether, less than two years. A. J. shows many characteristics of the untrained child. He invariably wants to do some other test than the one given to him, or to use the material in a wrong way. He has to be reprimanded quite severely to make him obey instructions. If the problem is at all difficult for him he either loses his temper and pounds the material, or he becomes discouraged and begins to cry. Because of his lack of concentration he fails in tests which later prove to be within his ability. It is typical of his conduct that he has a visual memory span for five numbers, but will not try the test unless he reads the figures backwards.

This child represents very fairly the type of cases in which purely formal tests fail because of the child's lack of previous training. This type is not to be confused with the uninformed child who fails in all the Binet questions involving information; here the lack of training shows itself in the child's evident unfamiliarity with any mental problem, and his consequent inability to attack it calmly. On the first testing by the Binet scale, A. J. was 2 3/5 years retarded, but later he did 4 1/3 more tests which makes him not quite 2 years retarded. After this indication that we are not measuring his real ability, some tentative diagnosis seems the only course. We must certainly admit that a single trial is utterly inadequate and that the tests may even fail altogether. In this type of case (by no means uncommon among court children) the difficulties found in making a court recommendation from tests are equally great in working with other tests as with the Binet tests and the psychologist must not fail to take these difficulties into account if any useful recommendation is to be made from the results.

Mental tests: *Binet tests*—failures; 7 years (4) giving value of stamps; 8 years (2) counting 20–0, (4) repeating numerals. (His memory span is 3 numbers); 9 years (1) making change, (4) naming months; 10 years (3) detecting incongruities, (4) solving common sense problems; 12 years, all. Binet age, 8 3/5. *Introductory test*—gave up after 4^m 15^s. He had done all except the triangles. *First construction test*—failed in 5^m. *Completion test*—done in a very nonchalant manner with 25 moves (there are only 9 spaces to be filled), and with 5 final errors, 3 being illogical. Later he does this with only 2 illogical errors and no random moves. *School work*—

does only the simplest concrete arithmetic and reads a first grade passage stumblingly with foolish comments. He was very restless and cried a good deal during these tests, but was easily cheered up.

Mental tests (three days later): *Binet tests*—he succeeds in doing the following tests which he had previously failed; 10 years (4) Says at once that before taking part in an important affair he'd "sit down and think about it;" 12 years (1) comparing lines, (2) using given words in one sentence, (3) saying 60 words in 3^m, (4) 1/3. He defines "charity" but cannot define "goodness" and "justice." The sixty word test was only done after a great deal of urging. He had tried it before and always cried as soon as he could not think immediately of another word. He still fails on 8 years (2) and (4), 9 years (1) and (4), probably because these require information. *First construction test*—still fails on this. *Second construction test*—done in 4^m, a slow record. *First cross line test*—done on second trial. *School work*—refuses to try any more arithmetic. *Auditory memory span*—3 numbers. *Visual memory span*—5 numerals.

2. Results relatively worse on retesting.

Case of dulness from dementia.

Case 22. B. U. 16 years, 9 months. Boy. **Summary:** Physical condition very good. The boy is clearly suffering from a mild mental upset, either an adolescent psychosis or the beginning of something more serious. Contrast the record of this boy with that of Case 5, the aberrational case given in Class I. In that case the Binet record is that of a normal individual, while in this case where the boy is known to have good ability, it is that of a defective: in the one case the Binet results do not tell the story, in the other they tell a false one. The very intelligent father of this boy tells us that until he was twelve years old he seemed entirely normal. At that time he passed examinations for the high school so that he is plainly at least up to the average in mental ability. When he began the high school course the teachers felt that he was peculiar and advised that he be examined. When we saw him he had already left school and had been working for sometime. This bright boy has a Binet age of just over 10 years and does equally poorly on other tests. The explanation is evident from his work on all tests involving mental control—note the atrocious results on the easy opposites test and on the Kraepelin tests. His conversation shows the same incoherence, he leaves his sentences unfinished and although he is not trying to defend himself he continually contradicts what he has just said. We certainly have no justification for accepting these negative results and no right to diagnose the boy as defective.

Mental tests: *Binet tests*—failures; 10 years (1) arranging weights, (2) copying drawings; 12 years (2) using given words in one sentence, (3) saying 60 words in 3^m. Binet age 10 1/5. *Second construction test*—1^m 1^s with 12 moves, a decidedly good record. *Second cross line test*—failed on fourth trial. *Completion test*—6 errors, 3 illogical, also an extremely poor result. *School work*—does long division with some careless errors. *Tapping test*—60 squares in 30^s with 4 errors (first trial); 60 squares in 30^s with 3 errors (second trial). *Kraepelin test*—subtracting by 7's from 100 done in 2^m 20^s with 6 errors. Subtracting by 6's done in 1^m 24^s with 3 errors. Poor results. *Opposites test*—14 errors, 1 failure. Range 6.8^s–2^s, average time 4^s. This is an extremely bad record and the responses were very peculiar as well as slow.

Mental tests (repeated by another examiner): *Second cross line test*—renumbered, done on first trial. *Completion test*—7 errors. *Tapping test*—done much worse, only 39 squares tapped in 30^s with 7 errors. *Kraepelin test*—subtracting by 7's, 6 errors. *Opposites test*—9 errors.

It is quite unnecessary to give further illustrations of cases which might come under this heading. Illness or physical weakness or depleting habits of many kinds, as well as dementia, *per se*, very obviously may cause a lessening of mental powers, either temporary or permanent.

CLASS III. CASES IN WHICH THE RESULTS ON TESTS ARE NOTICEABLY IRREGULAR.

1. Results on all types of tests irregular.

a. *Epileptic cases.*

Case 23. J. M. 11 years, 7 months. Girl. **Summary:** Physical condition, minor epilepsy. Her work on tests illustrates the peculiarities that are almost invariably found in the tests of the epileptic; though the epileptic is not the only type showing such records, hysterical cases and those addicted to bad habits showing the same reactions. These peculiarities are the variation from day to day, even from hour to hour, and the passing of more difficult and failing of less difficult tests; for instance, J. M. fails the second day in the first 12 year Binet test which she had previously passed, and does the completion test most atrociously, though later in the day she does this fairly well. The second peculiarity is shown in her work on the construction tests where she practically fails in the first test, which is generally considered the easier (56 moves, 17 of them impossible, for a test requiring 5 moves is practically a failure), while she does the second quite well.

Mental tests: *Binet tests*—failures; 12 years (3) saying 60 words in 3^m, (5) rearranging shuffled sentences. *School work*—addition and long division done correctly.

Mental tests (four days later): *Binet tests*—failures; 12 years (1) comparing lines. She had done this correctly before, but persistently fails in it today. Does the others very easily. *First construction test*—4^m 40^s with 56 moves; 17 are placing of pieces in impossible situations. This is practically a failure. *Second construction test*—2^m 47^s with 16 moves, only 5 more than the minimum.

Mental tests (next day): *Completion test*—done with 8 moves, 7 illogical, out of a possible 9 errors. This is a most unusually bad record. Later in the day she does it with 4 errors, 2 illogical.

Case 24. V. T. 12 years, 11 months. Girl. **Summary:** Physical condition good except for minor epileptic attacks. The girl has been truant from school a great deal and has been running away from home. Her tests results are true to the epileptic type, but she is subnormal as well, while with J. M. the poor results were due to epilepsy only. In this case the irregularities are shown in the Binet tests as well as in the performance tests. She does decidedly better on the second testing, her Binet age being changed from 8 2/5 to 9 1/5, but even at that the results are somewhat unusual; for she fails one of the 8 year tests yet succeeds in passing one of the 12 year group.

Mental tests: *Binet tests*—failures; 8 years (5) repeating numbers; 9 years (2) defining in terms superior to use, (4) naming months; 10 years (1) arranging weights, (2) copying drawings. Binet age, 8 2/5. *First construction test*—8^s with 6 moves. That is very well done. *Second construction test*—3^m 4^s with 28 moves. This is a normally good performance. *First cross line test*—done on third trial. *Second cross line test*—done on fourth trial, but with great difficulty, a very poor attempt for her age. *Completion test*—3^m 15^s with 4 errors, 3 illogical. This also is poor. *School work*—writes very badly and cannot add three columns of figures.

Mental tests (one week later): *Binet tests*—she still fails on 8 years (5); 9 years (2) and (4); but she now succeeds on 10 years (1) arranging weights, (2) 1/2 copying drawings, (5) using given words in two sentences; 12 years (2) using given words in one sentence, (3) saying 60 words in 3^m. Binet age, 9 1/5. *Second construction test*—56^s with 18 moves. *Second cross line test*—(renumbered) done easily on first trial; entirely different from her previous attempt. *Completion test*—2 errors, illogical. This also is very much better than her other effort. *School work*—done as poorly as before.

b. *Case of mental dulness from bad habits.*

Case 25. N. L. 11 years, 10 months. Girl. **Summary:** Very good physical condition. This case is significant as showing the effect on mental processes of a continued bad habit, even where this has not caused actual physical depletion. This little girl was brought to us because she had been through a series of bad sex experiences; which had not, however, involved any physical drain on her, but which at this time quite filled her mind. Mentally she is definitely not defective, but is at times dull and erratic in her work. She begins a test well, but her attention soon wavers; note her work on the second construction test and her attempt to do long division. She shows on the second testing that some of her failures were not due to inability, but to some temporary mental disturbance. The exact nature of this disturbance is doubtful, though it seems to involve a weakening of the powers of concentration. Perhaps this is due to intellectual debility, because of which the child lapses into a dreamy state or even one of mental vacuity, but it seems more probable that it is due to an obsessive recurrence of one system of ideas. Thus we have had girls tell us that "when a girl gets those ideas into her head, she can't get in any others," and children often stress the fact by stating that "those thoughts keep coming up in my mind in school."

Mental tests: *Binet tests*—failures; 10 years (2) 1/2 copying drawings, (3) detecting incongruities, (4) solving common sense problems. Does all the 12 year tests easily. *First construction test*—done fairly well. *Second construction test*—failed on first trial. Here she filled all but one space, and could not succeed in arranging those four pieces. Half an hour later does this quite normally in 3^{m} 3^{s} with 26 moves. *First cross line test*—done on second trial. *Second cross line test*—failed, clearly because she could not control her mental processes sufficiently. *Completion test*—1 illogical error, a normal result. *School work*—does arithmetic poorly. Other work fair.

Mental tests (next day): *Binet tests*—does the 10 year tests she had failed. *Second cross line test*—she still fails on this. Says she can't keep her mind on it. *School work*—she gets almost through a problem in long division without any errors, and then her attention weakens and she makes an error.

2. Results vary from time to time.

Case 26. I. K. 13 years, 6 months. Boy. **Summary:** Vision somewhat defective, but general physical condition good. Rather strong for age and size. This case illustrates rather strikingly the danger of making a diagnosis on a single examination where the results on Binet tests are poor. At the first interview this boy's

Binet age was just 9 years, one week later he passes every Binet test except giving 60 words in 3^m. The boy was sent from an institution for dependent children, partly because he has done so poorly in school during the five years he has lived there, and partly because he has recently begun to steal small amounts from the home. When we first saw him he seemed very friendly and so far as we could tell was quite at his ease and willing to cooperate. Though his work on performance tests was rather irregular, he did nothing so poorly as to indicate that he was defective mentally, yet on the Binet tests he only succeeded in getting through 9 years. He seemed to have done the very best of which he was capable at the moment, and, of course, his school work was on a par with the Binet results; nevertheless we said at the time that we felt he might do better another day. This proved to be decidedly the case for the next week he did all the tests he had previously failed except the third of the 12 year tests. From the first testing we should have considered him feebleminded, perhaps with some specialized ability, and the only possible recommendation would have been a school for the feebleminded. After seeing him a second time we considered him a border-line case who might become very useful in some institution, although he probably could not make good outside of one. Nevertheless he scarcely needs the training of a school for the feebleminded.

Mental tests: *Binet tests*—failures; 8 years (2) counting 20–0; 9 years (2) defining in terms superior to use. (4) naming months; 10 years (2) copying drawings, (3) detecting incongruities; 12 years, all. *First construction test*—failed in 5^m. Later did this in 55^s. *Second construction test*—1^m 27^s. *First cross line test*—done on first trial. That is, these three performance tests are quite well done; the failure was probably due to being "rattled." *Second cross line test*—done on fourth trial. This is a very poor result. *Tapping test*—done rather slowly but accurately. *School work*—he does only the simplest concrete additions, and can barely write.

Mental tests (a week later): *Binet tests*—does all the tests except 12 years (3) giving 60 words in 3^m. *Second cross line test* (renumbered)—done on first trial. *School work*—no better than before.

3. Results on Binet tests show great irregularity.

The first two records are those of feebleminded boys, but they differ from the common type in this great irregularity: Thus H. I. does better on the 7 year than on either the 5 or the 6 year tests, thus showing a small, but peculiarly distributed "area of irregularity." C. M. fails on two of the 7 year, yet passes one of the 12 year tests, showing a large area of irregularity. Both of these boys come of pronouncedly neuropathic parents. In the third case, S. T., the boy fails on one 8 year and passes three 12 year tests, but all his failures except one are very distinctly questions of information. This was not true of the other cases where the failures included questions involving information, memory span, and reasoning, indiscriminately. The detailed record of these three cases is as follows:

a. *Defectives (not of the usual type) whose irregularities are the results of failures on all types of Binet tests.*

Case 27. H. I. 7 years, 9 months. Boy. **Summary:** In this case, as in the following one, the heredity is bad. Both parents were alcoholic and the mother was probably insane. General physical condition is fair. The boy's Binet record is very irregular. He fails on more of the 5 and 6 year than of the 7 year tests. Moreover his responses to the same situation are extremely variable, so that one is not at all sure how much he really knows and how many of his replies are random. He has much difficulty with anything involving language, and refuses even to try the memory tests.

Mental tests: *Binet tests*—failures; 5 years (1) comparing weights, (3) repeating ten syllables, (4) counting pennies; 6 years (2) defining in terms of use, (3) drawing diamond, (4) counting pennies, (5) distinguishing pretty and ugly faces; 7 years (4) giving value of stamps, (5) naming colors. Binet age, 5 1/5.

Case 28. C. M. 15 years, 11 months. Boy. **Summary:** This boy shows a number of stigmata of degeneracy and is decidedly under nourished. No other physical defects. His heredity is bad. His father was neurasthenic and died in a detention hospital and one paternal aunt is insane. On the mother's side the heredity is good. C. M. does most erratically on Binet tests, fails two of the 7 year, two of the 8 year, two of the 9 year and four of the 10 year tests, and yet does one of the 12 year group. His Binet age is just 8 and his work on other tests confirms this.

Mental tests: *Binet tests*—failures; 7 years (4) giving value of stamps, (5) naming colors; 8 years (1) comparing objects, (2) counting 20–0; 9 years (1) making change, (2) defining in terms superior to use; 10 years (1) arranging weights, (2) copying drawings, (3) detecting incongruities, (4) solving common sense problems; 12 years (3) saying 60 words in 3^m; (12 years) (1), (4), (5) not tried.) Binet age, 8. *First construction test*—failed in 5^m. *First cross line test*—failed. *Completion test*—done in very random fashion with 8 final errors, 6 being illogical. *School work*—fails to add 5 and 2. Reads a third grade passage with difficulty.

b. *Normal children who fail on all the questions of one type.*

Case 29. S. T. 11 years, 4 months. Boy. **Summary:** This little boy is in rather poor physical condition because of a large infected cavity in the lower jaw. His home environment has been wretched. His father drinks heavily and does not support the family so that the mother is forced to work out all day. Consequently the boy has had almost no home control, and has been truant a good deal from school. Out of the six failures on Binet tests five are definitely due to lack of information. The fact that he does well on all performance tests which do not involve previous training proves that his poor record is due not to want of ability, but to lack of training.

Mental tests: *Binet tests*—failures; 8 years (4) date; 9 years (1) making change, (4) naming months; 10 years (1) arranging weights; 12 years (4) defining abstract terms, (5) rearranging shuffled sentences (boy cannot read these). Binet age, 9 4/5. *First construction test*—done in 17^{s} with 7 moves. *Second construction test*—2^{m} 35^{s} with 23 moves. *First cross line test*—correct on first trial. *Second cross line test*—correct on second trial. *Completion test*—done with only two logical errors. All these are decidedly good results. *School work*—does arithmetic very poorly and can barely read.

Case 30. P. D. Just 12 years. Boy. **Summary:** Physical condition, very defective vision; right eye 20/120, left eye 20/40. Attacks of vertigo. This case is given only to show that although lack of schooling frequently affects the results on Binet tests as in the case of S. T. (just cited) it may sometimes make no difference. In this case the boy has had probably less than three years schooling and no home training, yet he does all but one of the 12 year tests, including even the shuffled sentences, which he could read only with the greatest difficulty. P. D. is a little Italian boy who has always lived under miserable home conditions. His father and mother are separated and he lives with a younger brother and with the father who is away all day. The boys are locked out of the house in the morning and get their meals from neighbors. P. has just come from an institution where he thinks he was in the third grade. He has been in institutions twice before for a few months at a time; aside from that he has always "bummed most of the time after the first two years."

Mental tests: *Binet tests*—only failure; 12 years (4) defining abstract terms. (Note that the boy is just 12.) *First construction test*—21^{s} with 7 moves. *Second construction test*—1^{m} 15^{s} with 11 moves. *Second cross line test*—done on first trial. These three tests are excellently done. *Code test*—2 errors, 5 dots omitted. This also is done well for his age. *Completion test*—No errors. *School work*—this is of course very poor. He reads a second grade passage with difficulty.

CONCLUSIONS.

Class I includes nine types of cases, all indicating the need of more than the Binet-Simon system of tests for practical diagnosis. The inadequacy of these tests is due to a number of causes. The most obvious is the over-emphasis laid on language, the results depending so very largely on the individual's ability to use spoken English. This distorts results, not only in the case of the foreign-born person, where, as we should expect, the difficulty with an unfamiliar tongue hides real ability, and in the case of individuals with a special disability for language, but in a quite different manner distortion occurs in the case of the verbalist type of defective whose language ability is out of all proportion to his other abilities. Here we get an exaggerated view of his mentality and may find ourselves diagnosing as normal some subnormals of a type which is often socially dangerous.

Another cause of inadequacy of the Binet system is the fact that education and previous training very often, though not always, affect the results.

A third cause lies in the brevity of each separate task. The tests require only a series of spurts from the individual, instead of prolonged effort; consequently the tests give no indication of the person's power to control his mental processes and voluntarily hold himself to one line of thought. Even where lack of this power is sufficient to class the person among the defective or the aberrational cases, the Binet tests may fail to show any indication of it.

The above criticisms apply, not only to the Binet 1911 series, but in the main to the various revisions of the Binet system which have been offered. Kuhlman made a slight attempt to introduce performance tests into the series, but others have rather increased the proportion of language tests after 8 or 9 years, and have done little to prolong the task set, or to avoid the over-valuation of formal training. The recently developed Yerkes-Bridges Point Scale does not help at all in these vital particulars. We chose the 1911 revision of Binet himself because it represents the mature views of the master, and has received more general sanction than any other revision.

Then, there is the fact that the scale is satisfactory only up through 10 years. The tests above 12 years are now very generally realized to be of little value, and the want of any 11-year tests in

Binet's own latest revision greatly lessens the usefulness of the 12-year group. If a boy who has just completed his twelfth year passes all the 12-year tests, well and good, but if he passes only three? Surely one cannot count his mental age only 10 3/5 without positive proof that he would have failed on all the 11-year tests had there been any. On the other hand, why should each 12-year test penalize doubly? An analogous situation arises in the case of the child who passes all the 8-year, none of the 9-year, and three of the 10-year tests; his mental age is counted as only 8 3/5, although he has also passed three tests two years in advance of his basal age. If a child 13 years and 0 months failed on some of the 12-year tests, the fact would be significant, he would show somewhat retarded, but any Binet age as given between 10 5/5 and 12 5/5 means nothing exact. Since there are no valid Binet tests beyond 12 years, it follows that for all the cases over 12 years of age who are not feebleminded, there is no accurate gauge.

We have never felt justified in accepting any group of tests for 11 and 13 years, first, because there is no agreement by clinical psychologists as to the respective values of any of the groups offered, and, secondly, because we believe that Binet was probably right in his opinion that it is not possible fairly to offer a common gauge for the mental growth of any single year above 10 years. Accretions at that age are comparatively small and show great individual variation. At our institute we have long ago concluded that the Binet tests in any revision have little validity for the establishment of accurate age norms above 10 years. During the last year from other careful sources there have come strong corroborations of this opinion.

The above criticisms do not apply to the performance tests, which give us in these cases much information concerning the mentality of older persons, although not, of course, on an accretional age basis. Indeed we have found that the performance tests give us more adequate and more accurate information about all except the very young children—not only for the reasons given above, but because they more easily arouse the interest of the individual who is being examined.

The cases of Class I suggest a criticism of Binet tests. Those in Class II show the pitfalls in all mental testing. The salient fact is this—that an individual does not always react in the same way to the same tests. The inevitable conclusion is that a single examination may not give us a fair measure of a case. Just now when there is such a move to make use of psychological tests in connection with the courts, a realization of the limitations of mental tests is indispensable if applied psychology is to contribute anything of value to social justice and not merely bring itself into deserved disrepute. If we find, and we most certainly do find, that many extraneous factors may enter into the examination, causing a normal individual to react temporarily as a subnormal one, then we must accept the fact, admit that we cannot safely diagnose every case in a single examination, and make sure by repeated trials that we have measured the actual mental ability of the individual and not his ability negatived by unfavorable emotional or physical conditions.

The common feature of the cases in the Class III is the irregularity shown on test results. Such results are of great diagnostic value, but only after the most careful interpretation. This uneven work will lead the examiner to suspect some one of a certain group of abnormal conditions—we get such results in the cases of epileptics, constitutional inferiors, hystericals and those mentally dull from bad habits. After the trouble has been determined, the tests cannot be taken at their face value as giving a quantitative measure of the individual's mentality, except in the most general way, and after taking into account most carefully the probable effect of what may be a temporary abnormality.

REVIEWS AND CRITICISM

The Marking System in Theory and Practice. By I. E. Finkelstein. Baltimore: Warwick and York, 1913. Educational Psychology Monographs, No. 10.

"What we need to know," says Professor Whipple in his preface to Mr. Finkelstein's monograph, "is: What are the traits, qualities, or capacities that we are actually trying to measure in our marking systems? How are these capacities actually distributed in the body of pupils or students? What methods ought we to follow in measuring these capacities? What faults appear in the marking systems that we are now using, and how can these be avoided or minimized?"

In a very brief introductory chapter, the author sketches the problems which have arisen within the last decade with regard to the marking of students in schools and colleges. "From the studies of J. M. Cattell (1905), W. S. Hall (1906), Max Meyer (1908), W. F. Dearborn (1910), A. G. Smith (1911), A. G. Steele (1911), W. T. Foster (1911), and others who have discussed various phases of these problems, has come the demonstration that few teachers stop to consider what the marking system under which they work really implies; that the variability in the marks given for the same subject and to the same pupils by different instructors is so great as frequently to work real injustice to students; and that the marking system in most common use—the percentage system with 100 for a maximum and 60 or 70 as a 'pass mark'—is in all probability not the best system."

Chapter II discusses three theoretical problems: "Should marks indicate performance, or ability, or accomplishment? . . . What is the theoretical distribution of the quality or traits that the marks are to indicate? . . . What is the best method of translating the distribution into a scale of marks?" Mr. Finkelstein thinks "The best possible division of the marking scale for any small number of groups is the five member division," and he adds, "The theory of the application of the five-division system to the actual grading of students assumes that the actual distribution of marks should conform fairly closely to a theoretically predetermined distribution." Assigning "the symbols A, B, C, D, and E to excellent, superior, average, inferior, and failure, respectively," he shows that "the divisions recommended by Professors Meyer, Dearborn, and Cattell for each hundred students are as follows:

	A	B	C	D	E
Meyer............................	3	22	50	22	3
Dearborn.........................	2	23	50	23	2
Cattell............................	10	20	40	20	10

Criticizing the percentage system he makes an observation which will have weight with all who have studied its application to class grading. "Theoretically," he says, "this scale implies that distinctions of a fineness of one-hundredth may be made, and in practice such distinctions are constantly attempted. But what is the difference, if any, between a mark of 75 and one of 76? What, for that matter, does 75 mean? Has the student accomplished 75 per cent of some ideal accomplishment? . . . The very fact that its divisions [the hundred-point scale's] are so minute is doubly insidious; it promises precision, but it cannot afford it." In a footnote he quotes with apparent confidence the debatable conclusion of Professor Starch: "The steps on a scale should be at least twice the size of the mean variation or probable error of the measurements in order to be distinguishable steps. Hence the steps in a marking scale should be at least two times 4.2, or approximately 8 points. And hence on a scale of passing grades of 70 to 100 only four steps can be used with any degree of objective reliability."

Chapter III analyzes the combined results for numerous college courses, using some 20,348 marks given at Cornell University during the first term of 1902–03. The author finds that he is "justified in taking 75 as the net average mark of the students here represented for the purposes of fitting the curve of actual distribution to the curve of theoretical distribution." Continuing, he says, "Now if we assume, like Cattell, Meyer, and others, that the symmetrical probability curve were the correct theoretical distribution, then if 75 were the median or mode, there ought to be equal divisions above and below this mode. But the deviations above 75 cannot exceed 25 points; hence the lowest possible mark, or complete failure, would have to be indicated by the mark of 50. It is perfectly evident that this conclusion leads to an absurdity. Complete ignorance of a subject should be represented by a mark of 0."

If, however, he assumes that the correct theoretical distribution is a curve skewed to the right, then the translation of this curve to the actual distribution is feasible. He lays down as "the pattern or ideal distribution of marks the following scheme:

"Group................	Poorest	Inferior	Average	Superior	Excellent
Per cent...............	12	19	45	21	3
Range in percentile scale	0–59	60–69	70–84	85–94	95–100"

His conclusion is that "It would be in every respect desirable for Cornell University, and any other institution of like character, and probably also for the secondary schools as well, to adopt a five-division system of marking with the express provision that, in the long run, the marks given by any instructor must not deviate widely from the distribution just indicated."

Chapter IV gives the distribution of marks by individual courses, a total of 8141 marks being analysed. Charts are used to show, among other things, the first term marks in one course as compared with second term marks in the same course, typical "high markers" as compared with "low markers," and the low standing of a class of engineering students taking a course in mathematics as required work, contrasted with the far better standing of a class of arts students taking the same course as an elective.

Mr. Finkelstein believes that while "marks may be based upon performance, upon ability, or accomplishment, the last named is, save under unusual circumstances, the quality on which the marks should be based." Among his other conclusions there is at least one which might be adopted by college officers of administration, no matter what individual standards may be adhered to by members of the faculty, "In order to insure the working of the system,"—and this applies equally, of course, to any system of marking,—"the distribution actually given should be tabulated at stated intervals, say biennially, and the distribution should be made public, so that every examiner shall know to what extent he conforms to the principles on which the system is based."

A. T.

Character and Temperament. By Joseph Jastrow. New York and London: D. Appleton & Co., 1915. Pp. xviii+596.

It has been said in jest, that the man or woman who is fond of talking about temperament may be safely assumed to have none; and that the man or woman who is deeply concerned about his or her own character, has none worth fostering. But character and temperament are very real factors in human behavior. Professor Jastrow calls them, "the psychological sources of human quality." He says, "The composite term character and temperament has the currency of tradition; the possibility of interpreting it for present-day psychology is an inviting task."

The task which Professor Jastrow has accomplished is truly inviting. That the "currency of tradition" has more weight for him than has "present-day psychology," is evident. The psychology of this book is the psychology of the educated layman, of the reader of novels and literary magazines. Likewise, the sociological and biological generalizations upon which Professor Jastrow draws lavishly, are the generalizations of twenty years ago. Of present-day advances in the three great sciences of humanity, his book contains no hint. The work done, for example, in the field of heredity by the Pearson laboratory in London, and in the field of clinical psychology by the many clinics and laboratories in this country, is left unexplored.

The book occupies the pleasant and uncharted land between science and interpretive literature. The scientist will call it an essay; the essayist may prefer to look upon it as a scientific work. Psychologists who are making a scientific analysis of the fundamental variations of character and temperament and their causes, will get little, if any, assistance from this book. Workers for human progress, who "look forward and not back" will find it disappointing. But many cultivated minds will appreciate the grace of Professor Jastrow's style, and will consider that his views have a distinction which more than compensates for their lack of originality.

A. T.

NEWS AND COMMENT.

Prevocational Training in Elementary Schools.

A pamphlet of eighty pages recently issued by the department of education of the city of New York, contains social and economic data whose importance it would be hard to exaggerate. It is a report on the organization and extension of prevocational training in elementary schools, prepared by Dr. William L. Ettinger, associate city superintendent. It has seemed to him, he says, "of more value to make this report more in the nature of an historical sketch of what has been done, than to interpret any conclusions thereon, or to make recommendations as to the future."

On January 22, 1914, the board of education adopted a recommendation to introduce differentiated experimental courses in the seventh and eighth years of Public School 62 Manhattan. Six courses were approved, three for boys and three for girls,—academic, commercial, and industrial. As industrial training for the boys, provision was made for woodwork, machine shop, electric wiring, and sheet metal work; for the girls, dressmaking, millinery, pasting and novelty work, and the use of power machines. At the beginning of 7A grade the class of boys was divided into six sections, spending the afternoons in industrial work. Unusually marked aptitude was considered as establishing a choice of vocational training. Pupils showing marked deficiency were put back on academic work until their turn came to try another trade. The classes were organized in April, 1914.

On January 28, 1914, the board of education adopted a recommendation introducing an industrial course for girls in the seventh year of Public School 162 Brooklyn, in connection with the regular school work of that year, and classes were organized in February, 1914. Dr. Ettinger supervised the work in both schools from the beginning. The experiment involved: (1) Trade preparatory work; (2) Vocational guidance; (3) No loss of essential academic work.

In June, 1914, Dr. Ettinger was a member of a party which accompanied the Mayor and President of the Board on a visit to the schools of Chicago, Cincinnati, and Gary, Ind. Reporting to the president upon the results of this tour of inspection Dr. Ettinger says, "as far as the discovery of anything new or valuable in relation to the development of vocational work along elementary lines, I saw nothing comparable either in scope or in application with the work of our vocational schools or of our prevocational experiment in elementary schools." The now famous Emerson School of Gary, Ind., embodying the educational ideas of Superintendent William Wirt, he found "fruitful in valuable suggestions. It is a grade school, a work-shop, and a social center—all in one and under one management. It is truly a Communal School; it is a composite school with composite courses, and embraces all grades—kindergarten, elementary, and high school. It has an eight-hour school day—six hours of this time is taken up with the regular school program, including one hour for lunch—and the remaining two hours are spent by the child either in supervised play, supervised industrial occupations, supervised agricultural occupations, or supervised social activities. . . . The administration of the Emerson School embraces the widest use of the school plant. The school is never idle; it is working every day and every week during the year; it accommodates pupils to the extent of double the number of class sittings; it does this by the widest use of shop, auditorium, gymnasium, playgrounds, and gardens. Because of flexibility in grading and promotion, the child who is withdrawn from school for any reason, can resume work without danger of retardation. Vacation periods are not necessarily confined to the summer months. . . . In the Emerson School vocational guidance begins from the earliest period of school life." To his appreciation Dr. Ettinger is compelled to add a word of caution,—"In my opinion, vocational work in the Emerson School is not the best type of vocational training. The industrial occupations are all organized with a view to reducing the cost maintenance of the school, plant, and equipment. The work is therefore necessarily restricted to the particular articles required in the upkeep of the school. On this side there is a possibility of exploitation of the child without proper regard for higher development in vocational training."

A conference was held in New York in July, 1914, at which Superintendent Wirt was present, and he later submitted a report recommending that six schools be remodeled with practical shops to be used as prevocational laboratories. The schools chosen by the committee were 64 and 65 Manhattan, 5 and 158 Brooklyn, and 85 Queens, together with one school in the Bronx and one in Richmond to be selected later. In September, 1914, Dr. Ettinger conferred with the principals of these schools, and instructed them in the reorganization of their schedules in accordance with a program whose main features were: (1) To organize the schools on a two-unit plan, *i. e.* two duplicate schools in one building; (2) To provide for a wider use of gymnasium, auditorium, and playground; (3) To take advantage of public libraries, parks, and industries, and home co-operation.

A circular of information was given to all pupils in the classes concerned, and sent to their parents as well. It requested co-operation with the school, and contained among other things a strong economic argument for vocational training, drawing the following comparisons: "The unskilled laborer with little training, at the age of 22 earns $10 a week, and seldom earns a higher wage. Thus, assuming that he works 52 weeks a year for 20 years, his net earnings are $10,400. The trade worker with little schooling and shop instruction only, at 22 years of age, earns $13.25 a week; he may finally earn as much as $16 a week. His greatest net wages for 20 years will amount to $16,540.

"On the other hand, trade workers with a good elementary school education who enter trade schools and remain there until 18 or 19 years of age, earn $12 a week on their entrance into trades, and rapidly rise to $20 or $25 a week. The net income, as the result of this additional preparation, is $26,000 for the same period, or 2½ times greater than that earned by the unskilled learner. In other words, the net dividend on the education to be gained in the combined elementary and trade school would amount to $15,000."

In October, 1914, the board of superintendents authorized the organization of the prevocational classes, and provided for the licensing and selection of teachers. The eight branches of industrial training already introduced into the schools were continued, and to them were added plumbing, printing, book binding, sign painting, garment design, trade drawing, and home making, the last named being not the least important for the future welfare of families to be raised in the crowded districts of New York.

How the program has worked out in detail during the year is very fully set forth by Dr. Ettinger, with pictures of the classes at work. He gives an outline of the general course of study, and syllabi of the work in the several shops, together with lists of text-books and equipment. He leaves no point untouched, upon which information could be desired by any one, either within the system or from the outside. His pamphlet will be eagerly consulted by the many educators in this country who are giving serious consideration to the problem of preparing school children to become wage-earners.

A. T.

An Exhibition of Children's Pet Animals.

One of the objects of the Children's Pets Exhibition to be held at the Panama-Pacific International Exposition, December 2d and 3d, is to encourage children to study strange insects or animals instead of killing them. In regard to this Professor William E. Ritter, of the Scripps Institution for Biological Research of the University of California, says:

"I would like to see all children so surrounded and so instructed with reference to animal and plant life about them that they would have a kindly interest and regard for all creatures, and reach such a rational attitude toward them that only those who are definitely proved to be injurious in one way or another should be dreaded and marked as objects of destruction. There should be nothing in the way of hatred or fear,—excepting legitimate fear, that is, fear based on knowledge of injurious properties,—for any creature or plant. And on the positive side, while certain few animals, as some of the domestic varieties, might properly enough be made pets of, that is, may become companions of children, there should always be a predisposition to be kind to all living things, this predisposition serving to determine action until positive evidence prove the organism undeserving."

The superintendent of the exhibition considers the comradeship of pets a most valuable factor in the making of men of the future. He has firm faith that boys who are rightly interested in animals will grow into men interested in humanity; and he has found by past experience in local exhibitions of children's pets that what interests the children will eventually interest their parents.

Full information and entry blanks for the Children's Pets Exhibition (for which there are no expenses), may be obtained by writing to D. O. Lively, Chief of Department of Live Stock, P. P. I. E., San Francisco, California.

Essay Contest on Thrift.

At the Oakland meeting of the National Education Association, Mr. S. W. Straus, of Chicago, President of the American Society for Thrift, made a proposition to the Association in which he offered to finance the expenses of a committee if one should be appointed to study the methods by which instruction in thrift might be introduced into the public schools. He also offered to furnish funds which could be used for prize-essay contests on the subject of thrift. This offer was accepted by the Association and a committee was authorized to be appointed by the president of the National Council of Education.

In discussing the question of the essay contests with Mr. Straus, it was decided to conduct two, one of which should be open to school children and one to adults. The contest for adults will be managed entirely from the office of the Association, but it was thought best to manage the contest for children under the following conditions.

Each county superintendent will be asked to endeavor to secure a contest in each school within the county outside of cities of four thousand population. That figure was chosen because of the fact that it is the basis for the directory issued by the United States Commissioner of Education. It is planned to have each school select the three best essays that are presented, using any system in the selection which the teacher desires. The three best essays from each school will be sent to the county school commissioner, who in turn will, by any method he sees fit, select the five best essays from the schools of the county and send them to the state superintendent. At the same time there would be conducted in each city system of four thousand population or more a similar contest under the direction of the superintendent of schools. Superintendents of cities of less than ten thousand population will send one essay to the state superintendent; superintendents of cities with a population between ten and fifty thousand will send two essays to the state superintendent; superintendents of cities of from fifty to one hundred thousand population will send three essays to the state superintendent; superintendents of cities of over one hundred thousand population will send four essays and one additional essay for each additional one hundred thousand population.

The state superintendent will use any method he desires in determining the best essays from his state, and will send the ten best essays from his state to the office of the Association, which in turn will have these essays rated and the prizes awarded accordingly.

These essays are to be on the general subject of *Thrift*, the idea being to draw out the children's ideas on the subject without any suggestion as to methods by which the same should be treated. Essays will be limited to one thousand words. All essays sent to the state superintendent must be in sets of three each and typewritten. To the writer of the best essay a prize of one hundred dollars will be awarded; to the writer of the second best, a prize of fifty dollars; to the writers of the third and fourth best, prizes of twenty-five dollars each; to the writers of the fifth, sixth, seventh, eighth, and ninth best, ten dollars each.

The contest will close, so far as the writing of essays is concerned, December 1st. The county and city superintendents should fix a time for receiving the essays from the several teachers. It might be well to allow the month of December for that portion of the work. The month of January can be given to the county and city superintendents for their work, all essays to be in the hands of the state superintendents the first of February. The month of February will be given to the state superintendents for their examination, the essays from each state to be sent to the office of the Association by the first of March.

The month of March will be used by this office for its work, so that announcement concerning the prize winners can be made before the close of any schools.

In addition to the contest for school children, prizes are offered for the three best essays presented by adults on the subject of *Thrift—with an Outline of a Method by which the Principles of Thrift may be Taught in our Public Schools.* The first prize will be $750, the second prize $250, and the third prize $100.

Persons intending to compete for these prizes should notify the Secretary of the National Education Association of their intention not later than December 1, 1915. The essays must be in the possession of the Secretary not later than March 1, 1916. The essays must not exceed five thousand words and six typewritten copies must be presented. Further details will be sent to those indicating their intention to take part in the contest.

President Robert J. Aley, of the National Council of Education, has appointed the following Committee on Thrift Education:

Arthur H. Chamberlain, secretary, California Council of Education, San Francisco, Cal.

Robert H. Wilson, state superintendent of public instruction, Oklahoma City, Oklahoma.

J. A. Bexall, dean, School of Commerce, Oregon Agricultural College, Corvallis, Oregon.

John D. Shoop, assistant superintendent of schools, Chicago, Ill.

S. W. Straus, president, American Society for Thrift, Chicago, Ill.

Henry R. Daniel, secretary, American Society for Thrift, Chicago, Ill.

Milo H. Stuart, principal, Manual Training High School, Indianapolis, Ind.

Kate Devereux Blake, principal, Public School No. 6, Manhattan, N. Y.

C. H. Dempsey, superintendent of schools, Haverhill, Mass.

The Psychological Clinic

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REPRODUCTION OF SHORT PROSE PASSAGES: A STUDY OF TWO BINET TESTS.

BY A. TRAVIS,
Philadelphia, Pa.

GENERAL CONDITIONS AND DATA.

These tests were given in the Laboratory of Psychology of the University of Pennsylvania, as a regular class-room exercise in connection with Psychology 2c (undergraduate), Psychology 62 (graduate), and Psychology 30 (the Psychological Clinic). On the afternoon of April 15, 1915, the tests were given to 77 undergraduates; to 16 graduate students on the afternoon of April 16th; to 17 students in the College Courses for Teachers and 4 more graduate students on the morning of April 17th; and finally to 12 undergraduate and 2 graduate students in the Summer School on the morning of July 28th. The total number of students tested was 128, 69 men and 59 women. One man and one woman were colored. The distribution by college classes will be found in table I.

TABLE I

SUMMARY BY CLASSES, MEN AND WOMEN

	Men	Women
Arts, Senior	5	..
Junior	11	..
Sophomore	22	..
Freshman	7	..
Biology, Sophomore	..	2
Education, Senior	..	1
Sophomore	..	17
Freshman	3	9
Graduate	12	10
College Courses for Teachers	6	11
Summer School	3	9
Totals	69	59

PROCEDURE.

The class having come to a state of attention, the instructor said: "I want you to have a separate sheet of paper, please, which can be collected. Put your name at the top of the sheet, and the date. I am going to dictate a paragraph, or read a paragraph. I want you to pay attention to it, and then I want you to give the paragraph back again as well as you can. This is one of the Binet tests."

He then read selection B, from Dr. Town's translation of the Binet tests (1). This contains 80 words, and the reading occupied less than one minute. The students wrote down what they could recall of it, taking an average time of two and a half to three minutes, a few requiring as long as four minutes.

After allowing a few minutes of relaxation and rest, the instructor said: "On another sheet of paper will you make a similar record of this selection, which I shall read you. I shall not begin reading until you have all finished such preliminaries as writing your name. Everybody ready?"

Then he read selection A, which is taken from the 1915 Stanford revision of the Binet tests (10), with very slight changes. This selection contains 86 words, and the time of reading and subsequent writing was practically the same as in the preceding test. The papers were collected and filed, with the exception of selection B for 14 graduate students. These were given back to their writers to work over, and were not returned to the instructor. The paper for one student in the college courses for teachers appears to have been lost. Results are reported for 113 students in selection B. As will be seen later, the omission of these 15 records is probably not important.

MARKING.

Table II shows the results of both tests, by classes.

Selection B was marked in two ways. It was first analysed into seven essential ideas as follows, and the 113 papers were rated upon the number of points in seven which were reproduced by the student.

1. Many opinions have been given on the value of life.
2. Some call it good,
3. others call it bad.
4. It would be more just to say that it is mediocre,
5. for on the one hand our happiness is never so great as we would have it,
6. and on the other hand our misfortunes are never so great as others would have them.
7. It is this mediocrity of life which makes it just, or rather which prevents it from being radically unjust.

The passage was then subjected to a close logical (or rather grammatical) analysis after the manner set forth by Jevons (6) in his "Lessons in Logic," pages 94–97. This is very similar to the plan followed by Binet and Henri (2) in scoring the papers in their experiment upon children's memory span for phrases. As they remark, the division into phrases is bound to be somewhat arbitrary and any two experimenters will not agree about it, but the important thing is first to make as consistent a division as possible, and then to apply it impartially. By this method the paragraph yielded sixteen possible units, as follows:

Many opinions have been given (1)
on the value of life. (2)
Some call it good, (3)
others call it bad. (4)
It would be more just (5)
to say that it is mediocre, (6)
for { on the one hand (7)
our happiness is never so great (8)
as we would have it, (9)
and { on the other hand (10)
our misfortunes are never so great (11)
as others would have them. (12)
It is this mediocrity of life (13)
which makes it just, (14)
or rather (15)
which prevents it from being radically unjust. (16)

The papers were rated again upon this basis, and the rating was reduced to a percentage. One man and six women made a perfect score, 100 per cent; and one student, the colored man, had only one point in sixteen, or 6.2 per cent. Three other men and six women made scores under 50 per cent. All the rest of the students, 96, made scores between 50 and 93.7 per cent. This in itself is sufficient evidence that the test was too easy to be an adequate means of ranking so large a group. It is significant, on the other hand, that out of 113 university students, ranging in age from, say 17 to 45 years, 10 should have failed to make a score of 50 per cent in a test which is set down among the Binet tests for 15 years and over. Kuhlmann (7) says the subjects should give back two-thirds of the ideas, but he does not tell us how to score the test or how to calculate the two-thirds. On this basis, 84 students made approximately 66 per cent or over, and 29 failed to pass. Must we regard these persons as in some respect subnormal? Or is it just one more bit of evidence for the unreliability of the tests?

Selection A yielded results far more interesting. There were 128 papers, and six (in fact eight) ways of marking were chosen for comparison and study:

(1) The papers were read quickly and sorted into five heaps,—distinguished, good, passed, not passed, and failed. This is a very satisfactory method for ranking college quiz papers when only two or three topics are assigned for discussion. There were 13 D's, 41 G's, 48 P's, 22 N's, and 4 F's. This distribution contains more D's and G's than a large class taking an examination in psychology, but there are fewer P's, more N's and F's. The percentage value of these marks will be discussed later.

Mr. Finkelstein, who has written a monograph (5) upon the marking system, based upon an analytic study of many thousands of marks given at Cornell University, believes that a five-division system is the best. His favored system differs from the one at Pennsylvania in that he would place four of these marks above the passing grade and one below. At Pennsylvania we use two marks below passing, and three above. By combining Mr. Finkelstein's two highest divisions, however, we can bring his scale into approximate correspondence with ours, 60 being the passing mark in both scales. Translating his divisions now into D, G, P, and N, and combining our two lowest divisions as well as his two highest, we can make the following comparison. He believes that the theoretically ideal distribution of grades in the hundred would be, approximately, 25 D's, 45 G's, 19 P's, 12 N's. The distribution in the hundred for this test was as follows, 10 D's, 32 G's, 38 P's, 20 N's (and F's). This substantiates the idea expressed in the conclusions of the present study, that tests of this sort are not a fair index of students' ability in college work. The better students at any rate, and probably all grades of students, tend to make low scores on tests when rated solely by points.

(2) The five piles representing the five grades were now assembled into one, and the papers were arranged in rank order from the best D down to the poorest F (see third column of table II).

(3) Selection A was analysed into its essential ideas, of which it contained fourteen as follows:

1. Tests such as we are now making
2. are of value
3. both for the advancement of science
4. and for the information of the person who is tested.

5. It is important for science
6. to learn how people differ
7. and on what factors these differences depend.
8. If we can separate the influence of heredity
9. from the influence of environment
10. we may be able to apply our knowledge
11. so as to guide human development.
12. We may thus in some cases correct defects
13. and develop abilities
14. which we might otherwise neglect.

The papers were scored on the basis of the possible fourteen points, and it is interesting to note that while seven students (one man and six women) made a perfect score on the slightly shorter selection, no one made a perfect score on selection A, and only one student, a woman in the Summer School, made as high as 12 points in the 14.

(4) The papers were ranked again, this time strictly in order of points, and the second rank order is recorded in column 5 of table II and column 6 of table III. Table III gives the results according to the first rank order, and a comparison of columns 1 and 6 of table III will show the changes in rank order caused by giving chief importance to points instead of to other qualities which were considered in assigning the first rank order,—such as judgment in organizing and condensing material, terseness and vigor of expression, and finally what is hard to describe but easy to recognize, an effect of skill and mastery in the execution of the task.

(5) The papers being still in the second rank order, were given percentages ranging from the highest, twelve-fourteenths or 86 per cent, down to number 125, three-fourteenths or 21 per cent, with 20.7, 20.3, and 20.0 added to accommodate the last three papers, numbers 126, 127, and 128, which were even poorer. It was not assumed that the decimal fractions of one per cent had any significance whatever except as aids in maintaining an unbroken series from highest to lowest and avoiding duplications of rank.

This sort of percentage ranking used to be more common in the public schools than it is at present. If taken too seriously it is open to the criticism formulated by Mr. Finkelstein in his monograph on marking. He says, "Theoretically this scale implies that distinctions of a fineness of one-hundredth may be made, and in practice such distinctions are constantly attempted. But what is the difference, if any, between a mark of 75 and one of 76? What, for that matter, does 75 mean? Has the student accomplished 75 per cent of some ideal accomplishment? . . . The very fact that its divisions [the hundred-point scale's] are so minute is doubly insidious; it promises precision, but it cannot afford it." In the case of selection A, a score of 86 per cent means that the student has actually reproduced 86 per cent of the ideas given out. A score of 81 per cent, however, represents 11/14 of the ideas, which strictly should be 79 per cent, but some papers with 11 points were better than others, and some were worse, so that in ranking the papers by percentages the seven papers with 11 points each were distributed over the range from 81 per cent down to 76 per cent inclusive.

(6 and 7) The selection was analyzed a second time, after the method of Jevons, and now yielded twenty-five points. The papers were marked on this basis, and the score reduced to a percentage by multiplying by four.

(1) (2)
Tests such as we are now making
| (3) { both for the advancement of science (4)
are of value { and for the information of the person (5)
(6) who is tested.
(7) (8)
It is important for science
| (9) to learn { how people differ (10)
{ and on what factors (11)
these differences depend. (12)
(13) (14) { the influence of heredity (15)
If we can separate { from the influence of environment, (16)
(17)
we may be able to apply our knowledge (18)
so as to guide human development. (19)
We may { thus (20)
{ in some cases (21)
(22) |
correct defects }
(23) | } which we might otherwise (24)
and develop abilities } neglect. (25)

(8) The percentages now ranged from the highest, 22 points or 88 per cent, down to four points or 16 per cent as the lowest. The results will be found in columns 7 and 8 of table II, and in columns 8 and 9 of table III. The distribution by points will be found summarized in table IV.

TABLE II

RESULTS OF TESTS A AND B. SUBJECTS GROUPED BY COLLEGE CLASSES

CLASS	TEST A							TEST B			College Ranking	Term Mark Psych. 2
	Grade	Rank order	Points in 14	2d rank order	Percentage for 2d rank order	Points in 25	Per cent	Points in 7	Points in 16	Per cent		
A '15	G	27	8	41	57.0	12	48.0	7	11	68.7	94.5	D
	G	15	9	18	64.7	14	56.0	7	12	75.0	77.0	P
	P	101	6	99	38.3	7	28.0	7	11	68.7	77.7	P
	G	33	8	49	54.3	10	40.0	6	10	62.5	93.0	G
	N	122	4	122	22.5	10	40.0	6	8	50.0	88.0	P
A '16	D	12	10	12	70.0	16	64.0	7	12	75.0	....	P
	N	113	4	114	26.5	7	28.0	6	11	68.7	....	N
	G	42	8	51	53.7	12	48.0	6	11	68.7	62.9	N
	G	23	9	25	62.3	16	64.0	7	14	87.5	84.8	D
	G	46	9	32	60.0	12	48.0	5	8	50.0	68.8	N
	G	48	9	34	59.3	14	56.0	7	14	87.5	....	P
	P	88	6	91	41.3	8	32.0	7	14	87.5	79.2	G
	G	41	8	50	54.0	12	38.0	4	8	50.0	77.4	P
	P	75	7	76	46.0	11	44.0	7	14	87.5	....	G
	G	29	9	27	61.7	11	44.0	7	10	62.5	63.3	N
	P	93	6	94	40.0	9	36.0	5	8	50.0	68.8	P
A '17	D	8	11	7	76.0	16	64.0	7	11	68.7	....	P
	P	71	7	73	47.0	11	44.0	4	7	43.7	....	P
	G	52	8	55	52.3	11	44.0	7	12	75.0	....	P
	F	124	3	125	21.0	4	16.0	7	9	56.2	....	P
	P	67	7	69	48.3	10	40.0	7	16	100.0	....	G
	G	53	8	56	52.0	11	44.0	7	10	62.5	....	P
	P	90	6	92	41.0	10	40.0	6	8	50.0	....	G
	N	118	4	118	24.5	5	20.0	7	14	87.5	....	P
	G	17	10	14	68.0	13	52.0	7	14	87.5	....	P
	P	73	8	62	50.4	10	40.0	7	13	81.2	....	P
	P	55	8	58	51.3	10	40.0	7	14	87.5	....	G
	G	16	10	13	69.0	16	64.0	7	12	75.0	....	P
	D	5	11	5	78.0	18	72.0	7	13	81.2	....	P
	P	72	7	74	46.7	10	40.0	5	8	50.0	....	N.S
	P	64	9	37	58.3	14	56.0	7	15	93.7	....	G
	N	123	4	123	22.0	5	20.0	7	11	68.7	....	P
	N	109	4	112	27.5	9	36.0	6	10	62.5	....	G
	P	65	9	37	57.7	11	44.0	7	13	81.2	....	P
	P	98	6	96	39.3	11	44.0	7	15	93.7	....	P
	P	70	7	72	47.3	11	44.0	7	15	93.7	....	N
	N	120	4	120	23.5	7	28.0	6	10	62.5	....	F
	F	125	4	124	21.5	7	28.0	4	9	56.2	....	N
A '18	N	112	4	113	27.0	7	28.0	5	7	43.7	....	P
	G	25	10	15	67.0	14	56.0	5	9	56.2	....	P
	G	20	9	20	64.0	15	60.0	6	8	50.0	....	G
	N	103	5	103	36.0	9	36.0	7	14	87.5	....	G
	N	114	5	110	29.0	8	32.0	6	11	68.7	....	P
	N	111	5	109	30.0	9	36.0	6	10	62.5	....	G
	N	110	5	108	31.0	7	28.0	7	10	62.5	....	G
B '17	P	68	7	70	48.0	11	44.0	7	14	87.5	....	P
	D	9	10	9	73.0	16	64.0	7	13	81.2	....	G

TABLE II (*Continued*)

	TEST A						TEST B			
CLASS	Grade	Rank order	Points in 14	2d rank order	Per-centage for 2d rank order	Points in 25	Per cent	Points in 7	Points in 16	Per cent	Term Mark Psych. 2
E '15	G	49	9	35	59.0	13	52.0	7	12	75.0	D
E '17	G	34	8	46	55.3	12	48.0	7	16	100.0	P
	P	66	8	61	50.6	12	48.0	5	11	68.7	N
	P	92	6	94	40.3	9	36.0	6	9	56.2	P
	G	35	8	45	55.7	12	48.0	7	16	100.0	G
	P	57	8	59	51.0	12	48.0	7	14	87.5	G
	F	127	3	127	20.3	6	24.0	6	9	56.2	P
	D	3	11	3	80.0	18	72.0	7	15	93.7	G
	G	24	8	40	57.3	12	48.0	7	14	87.5	G
	P	91	6	93	40.7	11	44.0	7	14	87.5	P
	P	97	6	101	37.7	10	40.0	7	14	87.5	P
	G	31	9	29	61.0	12	48.0	6	11	68.7	G
	P	100	6	98	38.7	11	44.0	7	16	100.0	P
	P	76	6	85	43.3	10	40.0	7	16	100.0	G
	F	128	3	128	20.0	5	20.0	7	14	87.5	P
	D	7	11	8	75.0	15	60.0	7	14	87.5	G
	G	19	9	22	63.3	14	56.0	5	13	81.2	G
	P	69	7	71	47 6	10	40.0	6	12	75.0	G
E '18	F	126	3	126	20.7	5	20.0	5	8	50.0	P
	N	115	4	115	26.0	8	32.0	7	12	75.0	G
	N	105	5	105	34.0	9	36.0	7	13	81.2	P
	P	74	7	75	46.3	10	40.0	6	10	62.5	P
	G	36	8	44	56.0	14	56.0	7	14	87.5	P
	G	22	9	24	62.7	12	48.0	7	14	87.5	G
	N	108	5	107	32.0	6	24.0	7	15	93.6	P
	D	2	11	2	81.0	20	80.0	7	14	87.5	P
	G	38	8	48	54.7	11	44.0	6	11	68.7	P
	D	4	11	4	79.0	18	72.0	7	15	93.7	G
	P	59	7	65	49.7	11	44.0	5	8	50.0	G
	D	6	11	6	77.0	17	68.0	7	16	100.0	P
Grad.	P	56	7	64	50.0	11	44.0	..	..	....	
	G	45	9	31	60.3	13	52.0	..	..	....	
	P	94	6	95	39.7	7	28.0	..	..	....	
	G	39	8	43	56.3	13	52.0	..	..	....	
	N	119	4	119	24.0	5	20.0	..	..	....	P
	N	117	4	117	25.0	7	28.0	..	..	....	
	G	51	8	54	52.7	11	44.0	..	..	....	
	P	81	6	87	42.7	7	28.0	..	..	....	
	P	60	7	66	49.3	10	40.0	..	..	....	
	P	63	8	60	51.8	12	48.0	..	..	....	
	G	54	8	57	51.7	12	48.0	..	..	....	
	P	58	7	36	58.7	11	44.0	7	11	68.7	P
	N	107	5	111	28.0	7	28.0	..	..	....	P
	D	11	10	11	71.0	16	64.0	..	..	....	
	D	13	9	17	65.0	15	60.0	..	..	....	
	G	14	9	19	64.3	11	44.0	7	11	68.7	P
	G	43	8	52	53.3	10	40.0	7	12	75.0	

TABLE II (*Continued*)

CLASS	TEST A							TEST B		
	Grade	Rank order	Points in 14	2d rank order	Percentage for 2d rank order	Points in 25	Per cent	Points in 7	Points in 16	Per cent
Grad. *(cont.)*	G	21	9	23	63.0	11	44.0	6	10	62.5
	G	47	9	33	59.7	14	56.0	6	12	75.0
	P	86	6	89	42.0	9	36.0	6	11	68.7
	G	30	8	42	56.7	13	52.0	4	6	37.5
	N	116	4	116	25.5	5	20.0	4	7	43.7
C. C. T.	P	96	7	84	43.7	11	44.0	6	8	50.0
	P	84	7	81	44.3	12	48.0	6	11	68.7
	P	102	6	100	38.0	10	40.0	7	10	62.5
	G	32	9	38	58.0	10	44.0	3	5	31.2
	P	95	7	82	44.0	11	44.0	6	11	68.7
	G	28	10	16	66.0	13	52.0	5	8	50.0
	P	85	6	88	42.3	9	36.0	5	6	37.5
	P	87	6	90	41.7	12	48.0	4	5	31.2
	P	82	7	79	45.0	10	40.0	5	8	50.0
	D	10	10	10	72.0	16	64.0	7	12	75.0
	P	83	7	80	44.7	10	40.0	7	13	81.2
	P	62	8	63	50.2	14	56.0	6	9	56.2
	N	104	5	104	35.0	7	28.0	..	..	....
	N	121	4	121	23.0	7	28 0	1	1	6.2
	P	99	6	97	39.0	9	36.0	7	12	75.0
	P	89	5	102	37.0	8	32.0	6	11	68.7
	N	106	5	106	33.0	6	24.0	4	9	56.2
S. S.	P	80	7	78	45.3	10	40.0	3	4	25.0
	P	61	7	67	49.0	13	52.0	7	13	81.2
	G	37	8	47	55.0	13	52.0	5	11	68.7
	P	78	7	77	45.7	11	44.0	5	7	43.7
	G	26	9	26	62.0	13	52.0	7	14	87.5
	G	40	9	28	61.3	14	56.0	7	16	100.0
	P	79	8	68	48.7	11	44.0	7	10	81.2
	G	44	9	30	60.7	13	52.0	6	12	75.0
	G	50	8	53	53.0	10	40.0	7	11	68.7
	P	77	6	86	43.0	9	36.0	7	15	81.2
	D	1	12	1	86.0	22	88.0	6	15	93.6
	G	18	9	21	63.7	15	60.0	6	12	75.0

TABLE III—SELECTION A. SUBJECTS ARRANGED IN RANK ORDER

Rank	Sex	Class	Grade	Points in 14	Second rank order	Per cent	Points in 25	Per cent	Term mark Psych. 2
1	F	S. S.	D	12	1	86.0	22	88.0	..
2	F	E '18	D	11	2	81.0	20	80.0	P
3	F	E '17	D	11	3	80.0	18	72.0	G
4	F	E '18	D	11	4	79.0	18	72.0	G
5	M	A '17	D	11	5	78.0	18	72.0	P
6	F	E '18	D	11	6	77.0	17	68.0	P
7	F	E '17	D	11	8	75.0	15	60.0	G
8	M	A '17	D	11	7	76.0	16	64.0	P
9	F	B '17	D	10	9	73.0	16	64.0	G
10	F	C C. T.	D	10	10	72.0	16	64.0	..
11	F	Grad.	D	10	11	71.0	16	64.0	..
12	M	A '16	D	10	12	70.0	16	64.0	P
13	F	Grad.	D	9	17	65.0	15	60.0	..
14	F	Grad.	G	9	19	64.3	11	44.0	..
15	M	A '15	G	9	18	64.7	14	56.0	P
16	M	A '17	G	10	13	69.0	15	64.0	P
17	M	A '17	G	10	14	68.0	13	52.0	P
18	F	S. S.	G	9	21	63.7	15	60.0	..
19	F	E '17	G	9	22	63.3	14	56.0	G
20	M	A '18	G	9	20	64.0	15	60.0	G
21	M	Grad.	G	9	23	63.0	11	44.0	..
22	F	E '18	G	9	24	62.7	12	48.0	G
23	M	A '16	G	9	25	62.3	16	64.0	D
24	F	E '17	G	8	40	57.3	12	48.0	G
25	M	A '18	G	10	15	67.0	14	56.0	P
26	F	S. S.	G	9	26	62.0	13	52.0	..
27	M	A '15	G	8	41	57.0	12	48.0	D
28	F	C. C. T.	G	10	16	66.0	13	52.0	..
29	M	A '16	G	9	27	61.7	11	44.0	N
30	F	Grad.	G	8	42	56.7	13	52.0	..
31	F	E '17	G	9	29	61.0	12	48.0	G
32	F	C. C. T.	G	9	38	58.0	10	44.0	..
33	M	A '15	G	8	49	54.3	10	40.0	G
34	F	E '17	G	8	46	55.3	12	48.0	P
35	F	E '17	G	8	45	55.7	12	48.0	G
36	F	E '18	G	8	44	56.0	14	56.0	P
37	M	S. S.	G	8	47	55.0	13	52.0	..
38	M	E '18	G	8	48	54.7	11	44.0	P
39	M	Grad.	G	8	43	56.3	13	52.0	..
40	F	S. S.	G	9	28	61.3	14	56.0	..
41	M	A '16	G	8	50	54.0	12	48.0	P
42	M	A '16	G	8	51	53.7	12	48.0	N
43	M	Grad.	G	8	52	53.3	10	40.0	..
44	F	S. S.	G	9	30	60.7	13	52.0	..
45	M	Grad.	G	9	31	60.3	13	52.0	..
46	M	A '16	G	9	32	60.0	12	48.0	N
47	M	Grad.	G	9	33	59.7	14	56.0	..
48	M	A '16	G	9	34	59.3	14	56.0	P
49	F	E '15	G	9	35	59.0	13	52.0	D
50	F	S. S.	G	8	53	53.0	10	40.0	..
51	M	Grad.	G	8	54	52.7	11	44.0	..
52	M	A '17	G	8	55	52.3	11	44.0	P
53	M	A '17	G	8	56	52.0	11	44.0	P
54	F	Grad.	G	8	57	51.7	12	48.0	..
55	M	A '17	P	8	58	51.3	10	40.0	G
56	M	Grad.	P	7	64	50.0	11	44.0	..
57	F	E '17	P	8	59	51.0	12	48 0	G
58	F	Grad.	P	7	36	58.7	11	44.0	..
59	F	E '18	P	7	65	49.7	11	44.0	G
60	M	Grad.	P	7	66	49.3	10	40.0	..
61	M	S. S.	P	7	67	49.0	13	52.0	..
62	M	C. C. T.	P	8	63	50.2	14	56.0	..
63	F	Grad.	P	8	60	51.8	12	48.0	..
64	M	A '17	P	9	37	58.3	14	56.0	G

TABLE III (*Continued*)

Rank	Sex	Class	Grade	Points in 14	Second rank order	Per cent	Points in 25	Per cent	Term mark Psych. 2
65	M	A '17	P	9	37	57.7	11	44.0	P
66	F	E '17	P	8	61	50.6	12	48.0	N
67	M	A '17	P	7	69	48.3	10	40.0	G
68	F	B '17	P	7	70	48.0	11	44.0	P
69	F	E '17	P	7	71	47.6	10	40.0	G
70	M	A '17	P	7	72	47.3	11	44.0	N
71	M	A '17	P	7	73	47.0	11	44.0	P
72	M	A '17	P	7	74	46.7	10	40.0	N. S.
73	M	A '17	P	8	62	50.4	10	40.0	P
74	F	E '18	P	7	75	46.3	10	40.0	P
75	M	A '16	P	7	76	46.0	11	44.0	G
76	F	E '17	P	6	85	43.3	10	40.0	G
77	F	S. S.	P	6	86	43.0	9	36.0	. .
78	F	S. S.	P	7	77	45.7	11	44.0	. .
79	F	S. S.	P	8	68	48.7	11	44.0	. .
80	M	S. S.	P	7	78	45.3	10	40.0	. .
81	M	Grad.	P	6	87	42.7	7	28.0	. .
82	F	C. C. T.	P	7	79	45.0	10	40.0	. .
83	F	C. C. T.	P	7	80	44.7	10	40.0	. .
84	F	C. C. T.	P	7	81	44.3	12	48.0	. .
85	F	C. C. T.	P	6	88	42.3	9	36.0	. .
86	F	Grad.	P	6	89	42.0	9	36.0	. .
87	F	C. C. T.	P	6	90	41.7	12	48.0	. .
88	M	A '16	P	6	91	41.3	8	32.0	G
89	M	C. C. T.	P	5	102	37.0	8	32.0	. .
90	M	A '17	P	6	92	41.0	10	40.0	G
91	F	E '17	P	6	93	40.7	11	44.0	P
92	F	E '17	P	6	94	40.3	9	36.0	P
93	M	A '16	P	6	94	40.0	9	36.0	P
94	M	Grad.	P	6	95	39.7	7	28.0	. .
95	F	C. C. T.	P	7	82	44.0	11	44.0	. .
96	F	C. C. T.	P	7	84	43.7	11	44.0	. .
97	F	E '17	P	6	101	37.7	10	40.0	P
98	M	A '17	P	6	96	39.0	11	44.0	P
99	M	C. C. T.	P	6	97	39.0	9	36.0	. .
100	F	E '17	P	6	98	38.7	11	44.0	P
101	M	A '15	P	6	99	38.3	7	28.0	P
102	F	C. C. T.	P	6	100	38.0	10	40.0	. .
103	M	A '18	N	5	103	36.0	9	36.0	G
104	M	C. C. T.	N	5	104	35.0	7	28.0	. .
105	F	E '18	N	5	105	34.0	9	36.0	P
106	M	C. C. T.	N	5	106	33.0	6	24.0	. .
107	F	Grad.	N	5	111	28.0	7	28.0	. .
108	F	E '18	N	5	107	32.0	6	24.0	P
109	M	A '17	N	4	112	27.5	9	36.0	G
110	M	A '18	N	5	108	31.0	7	28.0	G
111	M	A '18	N	5	109	30.0	9	36.0	G
112	M	A '18	N	4	113	27.0	7	28.0	P
113	M	A '16	N	4	114	26.5	7	28.0	N
114	M	A '18	N	5	110	29.0	8	32.0	P
115	M	E '18	N	4	115	26.0	8	32.0	G
116	F	Grad.	N	4	116	25.5	5	20.0	. .
117	M	Grad.	N	4	117	25.0	7	28.0	. .
118	M	A '17	N	4	118	24.5	5	20.0	P
119	M	Grad.	N	4	119	24.0	5	20.0	. .
120	M	A '17	N	4	120	23.5	7	28.0	F
121	M	C. C. T.	N	4	121	23.0	7	28.0	. .
122	M	A '15	N	4	122	22.5	10	40.0	P
123	M	A '17	N	4	123	22.0	5	20.0	P
124	M	A '17	F	3	125	21.0	4	16.0	P
125	M	A '17	F	4	124	21.5	7	28.0	N
126	M	E '18	F	3	126	20.7	5	20.0	P
127	F	E '17	F	3	127	20.3	6	24.0	P
128	F	E '17	F	3	128	20.0	5	20.0	P

TABLE IV

DISTRIBUTION OF 128 STUDENTS BY POINTS REPRODUCED

SELECTION A—14 POINT ANALYSIS

	Men	Women	Total	
12 points in 14	..	1	1	
11 "	2	5	7	
10 "	4	4	8	
9 "	11	11	22	
				38 scored 66 % or over
8 "	14	11	25	
7 "	9	11	20	
6 "	8	10	18	
5 "	7	3	10	
4 "	12	1	13	
3 "	2	2	4	
				90 scored less than 66 %
				Total 128

SELECTION A—25 POINT ANALYSIS

	Men	Women	Total	
22 points in 25	..	1	1	
20 "	..	1	1	
18 "	1	2	3	
17 "	..	1	1	
16 "	4	3	7	
15 "	1	3	4	
14 "	6	3	9	
13 "	5	5	10	
				36 scored over 50 %
12 "	4	11	15	
11 "	12	10	22	
10 "	10	9	19	
9 "	5	5	10	
8 "	4	..	4	
7 "	11	1	12	
6 "	1	2	3	
5 "	4	2	6	
4 "	1	..	1	
				92 scored less than 50 %
				Total 128

SELECTION B—7 POINT ANALYSIS

	Men	Women	Total	
7 points in 7	31	31	62	
				scored 100 %
6 "	15	12	27	
5 "	6	8	14	
4 "	4	3	7	
				48 scored more than 50 %
3 "	1	1	2	and less than 100 %
1 "	1	..	1	3 scored less than 50 %
				Total 113

TABLE IV (*Continued*)

SELECTION B—16 POINT ANALYSIS

16 points in 16	1	6	7	
15 "	3	5	8	
14 "	8	11	19	
13 "	4	4	8	
12 "	8	5	13	
11 "	10	8	18	
10 "	8	3	11	
				84 scored 66 % or over
9 "	5	2	7	
8 "	8	4	12	
7 "	2	2	4	
6 "	..	2	2	
5 "	..	2	2	
4 "	1	..	1	
1 "	1	..	1	
				29 scored less than 66 %
				Total 113

DISCUSSION.

This test has been called a test of "memory span for ideas." It is purposely made so long that it exceeds the average adult memory span for connected words. One student reproduced the shorter passage word for word, but the fact that she failed to reproduce the slightly longer paragraph in the same way, makes it unnecessary to inquire whether she had ever heard it before, whether she was accustomed to repeating a paragraph verbatim upon one hearing, and for how long she could retain a passage learned in this way. The Admirable Crichton is said to have been able to repeat a long oration verbatim after hearing it only once. The mathematical prodigy Inaudi has a memory-span of forty-two digits. Mozart and other musicians have gone home and played from memory a long melody heard once at a concert.

No prodigies are to be found in the group of university students tested, but it is conceivable that most of them would have done much better had they been tested singly, under favorable clinical conditions, and if they had been asked to repeat *orally* what they had just heard. Required to give back the paragraphs in writing, their habit of condensing in note-taking seems to have operated as a restraint upon ample expression. Another factor worth considering is the modern adult's laziness when it comes to using longhand as a medium. These factors were distinctly observable in the results of the tests, but they operated in varying degrees not susceptible to close estimation. In a similar way it is evident that this test should reveal something about the range and concentration of attention, but here again we can do little more than affirm what we knew beforehand, that the better papers show a greater power of controlled attention to auditory stimuli of this sort, and greater persistence in writing down as much as possible.

Perhaps it would be more satisfactory, that is, approximately nearer to a complete understanding of what might be done with the test, to say that it tests an adult's imageability for phrases arranged in a paragraph and conveying moderately abstract ideas.

For purposes of comparison, the college records were obtained from the Dean's office for all undergraduates who had been in college three years or more. Three seniors had taken their course in three years; the remaining two had records for the full four years. Of the juniors in Arts, seven had been in college for three years.

Marks are recorded in the Dean's office by the five grades, D, G, P, N, and F. These grades have slightly different values in different departments. For example the passing mark in English is 70, in mathematics 60. Nevertheless it is admitted to be no more difficult to make a passing mark in English than in mathematics. In reducing these grades to percentages and striking an average, the method was adopted which was used last year and in previous years by Phi Beta Kappa,—D equivalent to 100 per cent, G to 80 per cent, P to 60 per cent, N to 40 per cent, and F to 20 per cent. This method has been subjected to criticism by members of the Pennsylvania Phi Beta Kappa Committee, and next year a revised scale may be used, in which D will be counted as 93 per cent, G as 85 per cent, and P as 73 per cent, these values representing a fairer median for the marks.

A comparison of columns 6 and 12 of table II shows that there is no correlation between college standing and the results of these tests. The most brilliant senior, with a general average of 94.5 per cent, ranked number 27 on our list with a score of only 57 per cent; and the next highest senior with an average of 93, ranked 33 on our list with a score of 54.3 per cent. These are the first rankings; if the ranking by points is compared, the discrepancies are even greater, as these men ranked number 41 and 49 respectively by points. Two juniors with exactly the same college standing, 68.8 per cent, ranked number 32 and 94 respectively on the second ranking.

This comparison enables us to discount the fact that the women students did very much better in these tests than the men. In the first ten per cent for Selection A (13 students) there were 10 women and 3 men; in the last 10 per cent there were 10 men and 3 women. The general distribution of men and women will be seen in tables III and IV.

There was not even the slightest correlation between the rankings of these tests and the term marks given in Psychology 2, in which the tests formed a class exercise. Of the undergraduates tested, 81 had marks in Psychology 2, as follows: 3 D's, 26 G's, 43 P's, 7 N's, 1 N.S. (no standing) and 1 F. The students receiving D ranked 23, 27, and 49 on test A. Those receiving G ranked as follows: 3, 4, 7, 9, 19, 20, 22, 24, 31, 33, 35, 55, 57, 59, 64, 67, 69, 75, 76, 88, 90, 103, 109, 110, 111, 115. Those receiving N ranked: 29, 42, 46, 66, 70, 113, 125.

There was likewise no correlation between the results of A and B. The prose passages used for the tests were very similar, in that both were trite, and badly phrased, and contained no ideas which could be expected to arouse keen interest in any member of a college class. They suggested no concrete sensory images; they stirred no emotion. To seize them in passing was a task comparable to the catching of the well-greased pig at the country fair. Furthermore, they were so nearly equal in length that the longer contained only six words more than the shorter. Yet in spite of all these similarities, the results do not correlate. The seven perfect scores on selection B were made respectively by numbers 6, 34, 35, 40, 67, 76, and 100 on the ranking list for selection A; and the one man who did worst in selection B, making a score of only 6.2 per cent, stood eighth from the last on selection A.

For testing students of university grade the passages should be chosen from the work of acknowledged masters of English prose. At least two passages and preferably three should be used, varying from abstract to concrete in ideas, and the results on the three tests averaged, if possible, for each individual tested. An experiment of this sort upon at least a hundred students would put us in a position to judge more fairly of the value of such tests, and to standardize them if it seemed worth while to retain them as tests of students' ability in college work.

As substitutes for the unsatisfactory passages used in the present study I would suggest the following three. The first is from Milton's "Eikonoclastes." It contains 80 words, and voices an abstract idea which should be within the comprehension and power of expression of anyone who has passed college entrance examinations in English. It should be read slowly, for it is so well organized that its relations are not immediately obvious. The papers could hardly be scored by points; but could be rated in five grades of excellence, and arranged in rank order; and could then be assigned percentages to indicate the ranking.

I.

> To counterfeit the hand of God is the boldest of all forgery. And he who without warrant but his own fantastic surmise, takes upon him perpetually to unfold the secret and unsearchable mysteries of high providence, is likely for the most part to mistake and slander them; and approaches for the most part to the madness of those reprobate thoughts that would wrest the sword of justice out of God's hand, and employ it more justly in their own conceit.

The next is from Tyndall's "Fragments of Science," chapter 8, Radiation, and contains 85 words. It makes perhaps too much demand upon concrete visual imagery, but is well adapted to the abilities of college classes, and moreover would be easy to score as a whole or by points.

II.

> Exposing his thermometers to the successive colors of the solar spectrum, Sir William Herschel determined the heating power of each, and also that of the region beyond the extreme red. Then drawing a straight line to represent the length of the spectrum, he erected, at various points, perpendiculars to represent the calorific intensity existing at those points. Uniting the ends of all his perpendiculars, he obtained a curve which showed at a glance the manner in which the heat was distributed in the solar spectrum.

The last is from Gibbon's "Decline and Fall of the Roman Empire," chapter 56, and contains 124 words. It is rich in concrete imagery, and contains so many ideas that it is easy to score by points.

III

> The Normans are a cunning and revengeful people; eloquence and dissimulation appear to be their hereditary qualities: they can stoop to flatter; but unless they are curbed by the restraint of law, they indulge the licentiousness of nature and passion. Their princes affect the praise of popular munificence; the people observe the medium, or rather blend the extremes, of avarice and prodigality; and, in their eager thirst of wealth and dominion, they despise whatever they possess, and hope whatever they desire. Arms and horses, the luxury of dress, the exercises of hunting and hawking, are the delight of the Normans, but on pressing occasions they can endure with incredible patience the inclemency of every climate, and the toil and abstinence of a military life.

Tests suitable for children in the elementary schools are formulated by Supt. D. C. Bliss (3) of Montclair in an article in THE PSYCHOLOGICAL CLINIC for March, 1912. Mr. Bliss uses the five-point method of scoring, but applies it in such manner that it is really a three-point system. Number one group includes the papers which are unintelligible, or "yet so poor as to show that the child has not grasped the rudiments of English composition." The highest grade, number five, he says "may not be reached by more than one child in five hundred." He has standardized the method of giving the tests, and discusses the qualities upon which scoring is to be based, showing specimen papers for each grade.

IMAGINAL TYPES.

When this investigation was first begun, it was intended to include in it a study of the imaginal types of the persons tested, as shown in their reproduction of a short story, to be known as test C. This story was taken from Colvin and Myers' (4) study of imagination, and was planned in such a way as to arouse a nearly equal number of concrete visual, auditory, and kinesthetic sensory images, in addition to the verbal imagery involved in its recall. This investigation has been excluded from the present study for two reasons which seemed cogent. In the first place, as has been remarked, selections A and B contained nothing which could be expected to arouse concrete sensory images. In the second place, Colvin believes, "In the higher grades and the university . . . visual material seems to be better learned and retained by all three types. Here doubtless the auditory and motor types rapidly and with practically no loss translate the material from one sense department to another. This can readily be done, since concrete imagery has greatly fallen off and symbolic and verbal thinking has taken its place, a type of thinking to which visual imagery particularly lends itself."

Meumann (8) does not quite agree with Colvin as to the absence of loss in the translation from one kind of imagery to another. He cites Polhmann's observations which go to show that an observer of visual type is hampered by the rapidity of an oral presentation. But in general his opinion is the same as Colvin's. He says: "We must not fail to bear in mind that the method of presentation does not by any means determine the method which will be adopted by the observer in his perception and apprehension of the material. This latter is a joint product of the mode of presentation and of the ideational type of the observer. If we present any material orally to a number of pupils, only those who belong to the pure auditory type will apprehend it in terms of auditory images; the visualizers will, so far as possible, transform it into visual images, and the observers who belong to the auditory-motor type will pronounce the words to themselves during the presentation."

The graduate students noted on the margin of their papers the imaginal type to which each believed he belonged. This was arrived at, in most cases, by "easy chair" introspection, and would need to be checked up by some controlled introspection under strict laboratory conditions. Only once did the memorandum of imaginal type seem to throw any light on the score of selection A, and that was in the case of a man who made a very low score, ranking number 119, and who remarked, "I think I am visual in imagery—little of it in this."

TRANSPOSITIONS AND OMISSIONS.

Transpositions, which are so common in the recall of series of digits used as a test of memory span, were very rarely met with in these prose passages. Three men and seven women transposed ideas, at the same time preserving the meaning.

The sentence most frequently omitted was the second,—"It is important for science to learn how people differ and on what factors these differences depend." Thirty-five men (50 per cent) and 26 women (44 per cent) omitted it. The concluding sentence,—"We may thus in some cases correct defects and develop abilities which we might otherwise neglect," was the next most frequently omitted, being missing from the papers of 29 men and 19 women. The first sentence of selection A was omitted by no one, although the first sentence of selection B was the one most frequently omitted in that test.

One misunderstanding was so common as to be worth mention. "For the information of the person who is tested," seemed to confuse some of the students, who took it to mean information *about* or *concerning* the person tested. This mistake was made in various forms by five men and seven women.

As might be expected when the originals were in such feeble English, the reproductions were even weaker. Errors in syntax, however, were not frequent. One or two foreign-born students used a singular noun with a plural pronoun and verb, and one graduate of Vassar split an infinitive. Another student wrote, "the purpose tested," which was obviously a slip of the pen for the *person* tested. Misspellings were not numerous: *heridity*, *benefical*, *develope*, *envoironment*, *memorary*, *desition*, and *medocrety*.

One candid undergraduate wrote at the bottom of his paper, "I did not hear the whole dictation." Judging from the way he rendered what he did hear, his failure to hear the rest was probably due to lack of attention. Another undergraduate, a sophomore in arts, coined this charming phrase,—"So life is neither unjust or too goo but a medium of mediocrity."

Four women, three of them graduate students and one a student in the college courses for teachers, were present on two of the occasions when the tests were given, and therefore were represented by two papers. In order to put them on a footing of equality with the rest of the subjects, only their first papers were ranked and included in the results in tables II to IV. All four of them made distinctly better marks on the second trial. One raised her score from 7 points to 9, one from 7 to 11, one from 9 to 10, and one from 5 to 9. This would seem to show a certain amount of practice effect, or assistance from the recollection and correction of omissions made in the first testing. It is remarkable that the woman who made the most improvement, rising from 5 points to 9 points, was already quite familiar with the substance of the passage. In a note to her second paper she says, "I have given this paragraph in the Kuhlmann tests a number of times. This time I tried to remember it verbatim, since I had given it in 62 yesterday. Pretty poor repetition, I should say." On her first paper she had confidently written, "Familiarity with test makes it a pretty simple visual memorary (!), verbal too. There is no auditory but some motor elements."

SPECIMEN PAPERS.

The fullest paper in selection A was the following, which had the additional merits of being neatly written, correctly spelled and well punctuated:

"Tests of this nature are of value both for science and for the information of the individual to whom the test is applied. It is of importance for science to observe the differences in individuals and to find out which factors they are due to. If it can separate what is due to environment from what is due to heredity, it can in some cases correct defects which would be otherwise neglected and in others prevent the development of peculiarities which might otherwise hinder the progress of the individual."

This is somewhat transposed, but the meaning is not distorted and only two out of the fourteen ideas are omitted.

The following paper is typical of a large group. It ranked number 26, received a G, and contained nine out of the possible fourteen points:

"These tests are of value not only for the advancement of science but for the information of the individual. We may find the various factors influencing development. If we could separate the influences of environment from those of heredity we might gain certain facts concerning the behavior of the individual, which we might otherwise neglect."

Here the transpositions modify the meaning to a considerable extent, but do not contradict it. When we come down to some papers in the lower range of the series, this number 26 quite shines by comparison.

One man who caught very little of selection A wrote:

"The tests which we are now making are not only a test of the student's ability but a test made for the advancement of science." But compare with this the same man's paper for selection B, which contained all seven of the essential ideas:

"There are many opinions on life. Some call it good and some call it bad. Rather it should be called mediocre, for life is never as good as we would have it, nor never as bad as it might be. It is this mediocrity that makes life just rather than unjust."

A paper which seems to betray a state of mental confusion is the following:

"Tests are of value both for the scientific side and informational. That is to know how much information one has, and for the advancement of science. If we can find out how one acts for the tests, we can test their ability. If we test their parents' ability we can get hereditary information. This aids in the advancement of science." This paper received credit for three ideas in fourteen.

But compare with it this paper, which, although it contains only one more of the fourteen ideas, must be regarded as the work of a very much abler mind:

"Tests such as we have been performing are of value (1) for the information of the individual, and (2) for the advancement of science."

And finally, here is the remarkable effusion of the lowest ranking student in selection B:

"Things are never really what they seem or what we would wish them to be, or think they should be, it is here where the seemingly unjustness of the world comes in, but to live, to work sore, and not to receive in return just compensation for energy expended in an honest task is one of the evils of modern progress, under such progress medocrety may become great, and greatness mediocre."

CONCLUSIONS.

The conclusions are negative, with unimportant exceptions:

(1) The results of these two very similar tests, given to the same students under the same conditions, do not correlate with each other.

(2) They do not correlate with college standing, as shown in the records of the Dean's office in the few cases where these were adequate for comparison. They do not even correlate with the term marks in the subject (Psychology 2) in which they were given as a class exercise.

(3) Women do better in these tests than men. This may point to the fact that women use verbal imagery of various sorts to a greater extent than do men. It probably means that women are better able to comprehend and transmit a spoken message.

(4) These tests are not satisfactory as diagnostic tests, when made under group conditions. They may well be stricken out of the Binet tests for fifteen years and over, unless given under standard Binet conditions. They might yield highly misleading results when not applied—as they are certainly not being applied

by many Binet testers—with the skill and discrimination of the experienced clinical psychologist.

(5) It seems probable that the most favorable results in the reproduction of selection A are represented by the papers scoring from six to ten points in a possible fourteen on the first trial. The better students, both graduate and undergraduate, made scores within this range. A lower score than six probably indicates on the part of the individual student some general incapacity for college work, or some temporary disability, as a severe headache, or an unusual noise outside the class-room, which interfered with attention. A student who makes too high a score in these tests, is very probably lacking in those habits of selection and condensation which are requisite to the taking of lecture notes. The better notes a student has trained himself to take, the less of this diffuse and insignificant material he will be able to hold in mind, down to a limit which seems to be represented by about six points for selection A. The test needs to be supplemented by other clinical observations of a student's behavior, before it can be determined whether the omissions are due to trained habits of selection, or merely to fluctuations of the untrained attention.

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THE SOCIAL TREATMENT OF UNMARRIED MOTHERS.*

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Twenty-five years ago a bricklayer fell from a scaffolding and was killed. His wife was left penniless, with ten little children to support. For a while she made a futile struggle against poverty until she too died, broken by over-work and worry. As there were no relatives to help, the children were scattered in homes and orphan asylums.

Jennie, the youngest, was hardly more than a baby, so little that she cannot remember the names of her brothers and sisters. For seven years she lived behind high walls in an institution where one of the methods of discipline was to whip a child for complaining of sickness before inquiring whether there was any ground for the complaint.

When Jennie was nine she was placed at housework in the country. After months of frequent beatings and hard work, even life in an asylum seemed preferable and Jennie begged to go back. . . . In five years she was again placed out with a family who "needed a girl." She was now about fifteen. The man of the family made improper advances to her and at her terrified entreaty she was again returned to an institution, this time for older girls.

After another year the institution authorities once more decided Jennie was "old enough to be earning her living," and the inevitable position at housework was found. With no education or training even in normal home life, her work was mediocre and ill-paid. Her little knowledge of housework was her one asset. She had been institutionalized to such an extent that she had no "property sense," no foresight for the future, and was so obedient and willing that anyone could exploit her.

In her loneliness she welcomed the friendship of Louis C., who worked in a "movie" in the neighborhood in which she lived. He was attractive, selfish, thoroughly cynical—the only man Jennie had ever known. They "kept company" for three years and she gladly promised to marry him. Under this promise he seduced her, only to leave town when she became pregnant.

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* A report made to the Social Service Committee of the University Hospital, September, 1915.

After Jennie's child was born it was found necessary to perform two major operations. She left the hospital broken in health, utterly disheartened and miserable.

. . . .

We have given this story at length because it is in a sense a typical one. As we study the life histories of these girls we are realizing more and more clearly that most of them under a different environment might have developed "like other girls". Lack of home training, loneliness and misunderstanding, an undisciplined will and inadequate education, all tend to thwart a normal self-development.

It is encouraging, in looking back over a period as brief as twenty-five years, to realize that Jennie's life story might have been different if it were begun now. There was then no Workmen's Compensation Act, no Mothers' Assistance Fund, no Compulsory Education Law. Institutions then kept no accurate records, so many helpful ties were broken and all chance of re-establishing families was lost. When Jennie was placed out there was no supervision from a disinterested children's agency, no provision for recreation or pleasure. In a word, there were no social props of any sort to hold Jennie up, and the affair with Louis C. was the natural, logical outcome of her planless, lonely life.

Only eleven hundred so-called "illegitimate" children are born yearly in Philadelphia and several millions of dollars are spent in caring for the mothers and babies. A committee has been organized recently to study this whole problem of illegitimacy—its legal aspects, its medical-social aspects, and the question of social treatment. It is not my purpose to try to anticipate the work of this committee. I wish simply to discuss in this paper some of the working principles that have been used in the Social Service Department of the University Hospital, on the chance that they may be suggestive to others.

During the period from January, 1912, to August, 1915, ninety unmarried mothers and women illegitimately pregnant have been referred from the Woman's and Obstetrical Dispensaries to one worker in the Social Service Department.

Of these ninety women studied, one-half (45) are white, of American parentage, one-quarter (24) are negroes, and the remaining quarter (21) are either foreign born or of foreign parentage. Seventy-nine live in Philadelphia or its immediate suburbs.

Nearly half (35) of the women studied were in domestic service, 6 were at domestic service in institutions, 12 were living at home and not otherwise employed, 4 were still in school, 13 were employed in factories or mills, 10 as saleswomen, and 3 as waitresses. One is a prostitute; the occupation of one is unknown. Only 5 belonged to the "skilled labor group,"—a kindergartner, an engraver, a practical nurse, a milliner, and a stenographer.

As may be seen from the social records of these women and from the analysis of occupations, most of them are industrially untrained and inefficient. Leaving school as early as the regulations of compulsory school education would allow, often before completing the work of the fifth or sixth grade, they have entered occupations which offer little in the way of promotion or of educational value. Most of them have come nominally under religious influence and have been confirmed in church or synagogue, but home conditions have been adverse to the development of high ideals or incentives of conduct. Intellectually, industrially and socially inefficient, they have been drifters, with under-developed powers of resistance in the face of environmental conditions tending to social mal-adjustment.

The main principles which seem to have been used in the case-work with these ninety women are as follows:

I. *Cases of illegitimate pregnancy should receive attention before confinement and should continue under the care of the Social Service Department after the birth of the child.*

Medical care and advice are important during the pre-natal period. The mental state of the expectant mother at this time makes her particularly susceptible to influence by those who are interested in her. This is the best time for adjusting strained home relations and for making a careful survey of the whole situation.

Knowledge of the previous history of the woman and of present home conditions are most important in dealing with her particular problem as well as in studying the social questions involved. The questions of the paternity of the child, the desirability of marriage or of legal process, all have to receive careful attention. No matter how little care and training a girl may have previously received, the home situation at such times is usually one of strain and anxiety if only from selfish ideas of avoiding publicity and disgrace when a daughter or sister "gets into trouble."

The worker gives instruction in regard to pre-natal hygiene and assists in making arrangements for confinement.

Practical advice as to the care of the child is given and directly and through other agencies the women are assisted in finding employment and in caring for their children.

The majority of the women come to the worker's attention before the birth of their children and a large percentage are still in touch with this department. The helpful understanding of the worker is a safeguard to the mother and a steadying influence in her new associations.

II. *Mental examinations by a psychologist are desirable.*

Not in cases of suspected feeblemindedness alone should they be made. Knowledge of mental ability is important in advising occupation, etc. Any real study of the question requires mental diagnoses.

It was possible in ten cases to secure a careful mental examination at the Psychological Clinic connected with the department of Psychology in the University of Pennsylvania. In some other cases the reports of employers and many personal interviews formed a fair basis of judgment as to the intelligence of these girls. The problem of accurately estimating their intelligence is often difficult. It is very easy for the examiner during his tests to confuse ignorance with stupidity, especially where the period spent in school has been short and where the girl's mental horizon has been bounded by the factory or kitchen. It is possible for him to observe at once that her vocabulary is meager, that her fund of general information is pitifully small, and that she fails in many of the so-called "intelligence tests" which emphasize language development. He may forget that the mental inferiority of women as a sex was once established on the basis of similar observations. To come to a satisfactory diagnosis the psychologist must know something of the opportunity for mental development which these women have had, and he will take into account the reports of parents and employers as to the girls' capabilities as well as their reactions to his laboratory tests.

The ten cases examined at the Psychological Clinic were not chosen because of suspected mental defect. The result of such a mental examination often has real value for the social worker as a basis for vocational guidance and for the solution of other practical social problems involved. The psychologist is asked not "Is this girl feebleminded?" but "Is she capable of caring for her child and supporting herself?" or "Is she likely to profit by further training or should she secure employment for which she is now fitted?"

Of the ten cases examined by a psychologist, five were diagnosed as normal, three as border-line cases, and two as feebleminded. No cases of obvious feeblemindedness of low grade appeared among the ninety cases. It seems probable that about twenty per cent of the ninety cases should be classed as sub-normal, but that not more than ten per cent of them could be certified for commitment to an institution for feebleminded women if such commitment were compulsory. It will be the policy of this department to have more of its cases in the future examined by a psychological expert in order to have data of statistical value on this subject.

III. *Marriage of the girl to the child's father should be considered on its own merits.*

It should never be urged with the idea of saving the situation, or punishing the man. Technical legitimacy for the child does not warrant an otherwise undesirable marriage. The worker believes that marriage should not be contracted except on the basis of mutual affection. "Forced" marriage is seldom a solution, and even where it can be arranged, by no means always leads to a satisfactory adjustment. Seven of these women have married the fathers of their children, however, and five have married other men. The worker in every case urges the girl to tell the man her full history before marriage, if he is not the father of her child.

On the other hand—

IV. *The father's responsibility should never be ignored.*

Legal action for support is almost always desirable and it is a proper function of social service departments to assist in bringing such action. The present attitude of the Philadelphia Municipal Court in these cases is most helpful. Support orders are now made on the fathers for fourteen years, until the child is of working age, and in her struggle with the world the mother finds this help invaluable.

V. *The mother and the child should be kept together.*

The reasons which should make exception to this rule (feeblemindedness, insanity, immorality, etc.) are those which also apply in the case of legitimate children.

The question of finding suitable employment for untrained women with little education and often mediocre or defective intelligence is difficult. The necessity of caring for the child adds to the difficulty. More are placed in domestic service than in any other occupation, but figures show that this is the occupation which contributes the largest number of cases of illegitimate pregnancy and this fact makes the wisdom of this disposition questionable in theory, however much practical consideration may make such work seem desirable. The standards of intelligence and efficiency in domestic service are low and the wages relatively high compared with other unskilled occupations.

VI. *The so-called moral aspects of illegitimacy itself should not be stressed.*

The moral emphasis should be put upon future self-development and self-control, responsibility for and care of the child, rather than upon the irregularity of past conduct.

This study has emphasized the necessity of differentiating cases of irregular sexual intercourse. Most of the girls studied have never had promiscuous sexual relations nor have they received financial remuneration. The problem is not one of prostitution. In many cases the sexual irregularity of the women has been limited to one occasion. Even where these relations have extended over a period of time, it is usually with men whom they expect to marry. Consent was reluctantly given and in many cases because of belief that this relation would attach the men's affections permanently to themselves. A large majority of them are girls of "reputable character." Many girls from the same social stratum follow the same course of reasoning, but do not happen to become pregnant. Community reaction toward such relations is mild compared with that toward the girl who "gets into trouble" or "gets caught." It is her illegitimate pregnancy rather than her sex relations for which she is severely blamed.

The following history illustrates these points. Gertrude B.—American; Catholic; bright attractive girl of twenty-one; employed as waitress; parents self-respecting and thrifty; home conditions excellent; considered a "model daughter." Had been engaged to John S. (a driver) for over a year; postponed consideration of marriage on account of his irregular employment; sex relations for many months; this unknown to parents, who favored the attentions of John S.

Gertrude came to Obstetrical Dispensary in 1912, four months pregnant. John had learned of her condition and had ceased calling; his whereabouts unknown to Gertrude; parents not yet informed of her condition.

The worker advised Gertrude to tell her mother at once. At first her mother was unwilling to tell her husband, and Gertrude was placed in a Maternity Home. The worker kept in touch with Gertrude and her mother, who finally was persuaded to tell the father. He at once said Gertrude "had been too good a daughter for twenty-one years to stay anywhere but home." Confinement at home was arranged. No legal action was taken, as John S. could not be found. A year later John S. returned to the city and met Gertrude on the street. She finally consented to marry him and they are now living with his parents; second child born 1915; social prognosis favorable.

VII. *Full records of case histories should be kept.*

They are indispensable in any scientific study of the problem involved. They give system to the efforts directed to any particular case. The following case history shows the value of *accumulated data* of this type, even though for months it was to all appearances valueless.

Rebecca A.—Russian Jewess; seventeen; mentally normal, but below the average in intelligence; employed in mill at $6 a week; one of ten children; father alcoholic and brutal; mother decent; girl spent evenings on street. Rebecca came to the hospital 1913, two months pregnant; syphilis and gonorrhea. Claimed assault by Charles O. Had been married ten days before visit, to Jacob M. (nineteen), a boarder with family, who did not know of pregnancy or disease. Later Rebecca admitted that relations with Charles O. had extended over a year. The worker appealed to a rabbi and together they tried to persuade Jacob M. to annul the marriage on account of physical danger to himself and for eugenic reasons. Jacob refused, fearing the ridicule of friends; objected to Rebecca's being kept in Philadelphia Hospital for treatment. Rebecca would not believe that she was pregnant and neither she nor her mother thought the infection serious. She improved under treatment and was dismissed; difficult to persuade to continue dispensary treatment; reported intermittently. Employed in cigar factory for several months. Later appealed to the worker for help in securing confinement care. Baby born, treated at Skin Dispensary for hereditary syphilis. Jacob paying small sums irregularly to Rebecca, who lived at home. Baby died at three months. Family moved to Camden. Rebecca renewed acquaintance with Charles O., the father of her child. Refused to come to dispensary. September, 1914, worker received word that Rebecca was living as a prostitute in New Jersey. December, 1914, Rebecca was reported to be living with Alfred R. Illegitimate child, died when one month old. House raided. Later Rebecca was arrested and through the evidence accumulated by the worker she was committed to the New Jersey Reformatory. Prognosis unfavorable; but at least society has been protected for a term of years.

The change in the mother's attitude in this case is most significant. She has left her brutal, abusive husband. For the sake of the younger children she will not allow the oldest daughter, who is a prostitute, to come home to visit. She has given her eager consent to have another child who is feebleminded, placed in Elwyn, though when institutional care for Rebecca was suggested in the beginning she objected violently. If our premise is true—that illegitimacy is due chiefly to environmental causes—the younger children of this family have a better chance than Rebecca had. The home is already much improved and the worker feels hopeful that the evil influences of the past may be gradually obliterated.

VIII. *Definite and systematic study of the problem of illegitimacy by all agencies dealing with the subject is desirable.*

It is important that the different agencies which have to deal with illegitimacy in a practical way should publish studies of the results of their work not only as a report of accomplishment but as a contribution to the scientific study of the whole problem.

They must appeal to all interested in reducing the amount of illegitimacy in our city or in practical dealing with cases of this kind to look beyond the facts of individual cases for causes of conditions which are socially pathological, or at best mal-adjusted, in order to arrive at general principles of prevention and successful social therapy.

This programme calls for thorough-going scientific effort without preconceived bias or religious or philanthropic hysteria. It has practical and theoretical aspects which cannot always be harmonized under existing social and economic conditions. One may theorize, for example, about the equal responsibility of both parents for the care and maintenance of an illegitimate child, and yet in our present society the burden of responsibility must rest upon the mother in spite of theory and often in spite of a court decree.

In insisting that she keep the child with her, society assumes that she is—or can become—a fit mother for it; and it is on that point—her development in motherhood—that we must lay our emphasis in the future. It is a task that requires endless sympathy and patience, unfailing kindness, and a broad knowledge of social trends and principles.

REVIEWS AND CRITICISM.

Backward Children. By Arthur Holmes. Childhood and Youth Series. Indianapolis: The Bobbs-Merrill Company, 1915. Pp. x+247.

Dr. Holmes' contribution to the series edited by Professor O'Shea is "an inductive study of backward children. It presents in a series of concrete illustrations," says Dr. Holmes, "studies of cases to exemplify the principles and methods underlying the diagnosis, treatment and training of backward children." His aim has been to describe the cases "simply, non-technically, and humanly." His success was to be foreseen by his friends who know of his rich experience in Y. M. C. A. and college work, and in the Psychological Clinic at the University of Pennsylvania, as well as by the multitude of readers of his earlier volumes. Truly he has the gift for making his books, "as popular in vein as possible without offending scientific principles or sacrificing scientific exactness in essentials."

The ten chapter headings give a comprehensive idea of the scope of the present volume, and indicate its quality:

I. Measuring rods for children; II. Varieties of backward children; III. Typical retardation due to physical defects; IV. Minds in straight jackets; V. Bad and backward; VI. Retardation due to environment; VII. The Backward child in the home; VIII. The clinical diagnosis of backward children; IX. The teacher's diagnosis; X. The teacher and equipment for a special class.

While every page will yield something of interest to all teachers and parents, the first and last chapters are probably the ones most valuable to the inexperienced teacher of backward children. At the end of chapter one Dr. Holmes gives an admirable brief summary of standards for estimating backwardness:

I. Individual standards.—A backward child is one who is not so far advanced as he ought to be, when his birth and opportunities are considered.

II. Social standards.
   A. Popular standards.
      1. In the home.—A backward child in the home is one who learns at a later age than that of his brothers and sisters how to walk, talk, eat, dress himself, etc. His parents' judgment is the measure.
      2. In the neighborhood.—A backward child is one who, in the judgment of the neighbors, is behind the other children in their activities. Neighbors usually judge less mercifully than parents and the backwardness is more pronounced if it is noticed by the neighbors.
      3. On the playground.—A backward child is one who can not play the games children of his age can play, and who therefore plays with younger children.
   B. Scientific standards.
      1. Among nations.—A child is backward only when he falls behind the average for his own race or nation. This is the anthropological standard.
      2. In school.
         a. The age standard.—A backward child is one who, from any cause whatsoever, is two years or more behind the grade

he ought to be in for his age. The pedagogical standard is a child who begins school at the legal age and is promoted regularly with his class. Pedagogical retardation is a fact and has nothing to do with causes, is not always a detriment, and should not be condemned until the causes are known.

b. The progress standard.—According to this standard a backward child is one who takes longer than the regularly scheduled time to complete one grade, no matter how old he is. In the long run, with many pupils, these two standards give about the same results.

3. In general intelligence.—According to several systems like the Binet-Simon, De Sanctis, and others, a backward child is one who cannot answer certain sets of prescribed questions and do certain tasks presumably fitted to his years. The standard child is one who can do these tasks and give these answers.

In chapter ten Dr. Holmes discusses the qualifications and training of the teacher; the location, number, and furnishing of rooms for a special class; the equipment for elementary manual training; an ideal daily program, and lastly a syllabus of the manual work suitable for children of various ages.

A. T.

NEWS AND COMMENT.

Peace Prize Contest.

Two sets of prizes, to be known as the Seabury Prizes, are offered by the American School Peace League for the best essays on one of the following subjects:

1. The Opportunity and Duty of the Schools in the International Peace Movement. (Open to Seniors in the Normal Schools.)

2. The Influence of the United States in Advancing the Cause of International Peace. (Open to Seniors in the Secondary Schools.)

Three prizes of seventy-five, fifty and twenty-five dollars will be given for the best essays in both sets. The competition is open to pupils of all countries, and closes March 1, 1916. The conditions are as follows:

Essays must not exceed 5000 words (a length of 3000 words is suggested as desirable), and must be written, preferably in typewriting, on one side only of paper, 8 x 10 inches, with a margin of at least 1½ inches. Manuscripts not easily legible will not be considered.

The name of the writer must not appear on the essay, which should be accompanied by a letter giving the writer's name, school, and home address, and sent to Mrs. Fannie Fern Andrews, Secretary, American School Peace League, 405 Marlborough Street, Boston, Mass., not later than March 1, 1916. Essays should be mailed flat (not rolled).

The award of the prizes will be made at the Annual Meeting of the League in July, 1916. Information concerning literature on the subject may be obtained from the Secretary. In addition to the cash prizes, Doubleday Page and Company will send a copy of "War and Waste," by David Starr Jordan, to the three successful contestants and to the four receiving honorable mention in each set.

Directory of American Psychological Periodicals.

(Revised to December 1, 1915.)

American Journal of Psychology—Worcester, Mass.: Florence Chandler. Subscription $5. 600 pages annually. Edited by G. Stanley Hall. Quarterly. General and experimental psychology. Founded 1887.

Pedagogical Seminary—Worcester, Mass.: Florence Chandler. Subscription $5. 575 pages annually. Edited by G. Stanley Hall. Quarterly. Pedagogy and educational psychology. Founded 1891.

Psychological Review—Princeton, N. J.: Psychological Review Company. Subscription (with Psychological Bulletin) $5. 480 pages annually. Bi-monthly. General. Founded 1894. Edited by Howard C. Warren.

Psychological Bulletin—Princeton, N. J.: Psychological Review Company. Subscription $2.75. 480 pages annually. Psychological literature. Monthly. Founded 1904. Edited by Shepherd Ivory Franz.

Psychological Monographs—Princeton, N. J.: Psychological Review Co. Subscription $4. 500 pp. per vol. Founded 1895. Ed. by James R. Angell. Published without fixed dates, each issue one or more researches.

Psychological Index—Princeton, N. J.: Psychological Review Company. Subscription $1. 200 pp. Founded 1895. Edited by Madison Bentley. An annual bibliography of psychological literature.

Journal of Philosophy, Psychology and Scientific Methods—New York: Science Press. Bi-weekly. 728 pages per volume. Founded 1904. Subscription $3. Edited by F. J. E. Woodbridge and Wendell T. Bush.

Archives of Psychology—Substation 84, N. Y.: Archives of Psychology. Subscription $5. 600 pp. ann. Founded 1906. Ed. by R. S. Woodworth. Published without fixed dates, each number a single experimental study.

Journal of Abnormal Psychology—Boston:- Richard G. Badger. Subscription $4. 480 pages annually. Edited by Morton Prince. Bi-monthly. Founded 1906. Entire field of abnormal psychology.

Psychological Clinic—Philadelphia: Psychological Clinic Press. Subscription $1.50. 280 pages annually. Edited by Lightner Witmer. Monthly (9 numbers). Orthogenics, psychology, hygiene. Founded 1907.

Training School Bulletin—Vineland, N. J.: The Training School. Subscription $1. 160 pp. ann. Ed. by E. R. Johnstone. Founded 1904. Monthly (10 numbers). Psychology and training of defectives.

Journal of Religious Psychology—Worcester, Mass.: Louis N. Wilson. Subscription $3. 480 pages annually. Founded 1904. Quarterly. Edited by G. Stanley Hall.

Journal of Race Development—Worcester, Mass.: Louis N. Wilson. Subscription $2. 460 pages annually. Founded 1910. Quarterly. Edited by George H. Blakeslee and G. Stanley Hall.

Journal of Educational Psychology—Baltimore: Warwick & York. Subscription $2.50. 600 pages annually. Founded 1910. Monthly (10 numbers). Managing Editor, J. Carleton Bell. (Educational Psychology Monographs. Edited by Guy M. Whipple. Published separately at varying prices. Same publishers.)

Journal of Animal Behavior—Cambridge, Mass.: Emerson Hall. Subscription $3, foreign $3.50. 450 pp. annually. Founded 1911. Bi-monthly. Robert M. Yerkes, Managing Editor.

The Behavior Monographs—Cambridge, Mass.: Emerson Hall. Subscription $3. 450 pages per volume. Edited by John B. Watson. Published without fixed dates, each number a single research.

Psychoanalytic Review—New York: 64 West 56th Street. Subscription $5. 500 pages annually. Psychoanalysis. Quarterly. Founded 1913. Edited by W. A. White and S. E. Jelliffe.

Journal of Experimental Psychology—Princeton, N. J.: Psychological Review Company. 480 pages annually. Experimental. Founded 1915. Subscription $3. Bi-monthly. Edited by John B. Watson.

The Psychological Clinic

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A POSSIBLE RESTORATION CASE.

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For several years the Psychological Clinic of the University of Pennsylvania has been interested in the study of restoration cases. By a restoration case is meant a child who is socially incompetent because of deficiency on the ability or on the conformity scale, but who can be restored to plenary competency by some kind of special treatment. A child's pedagogical grading has been taken tentatively as the measure of his social competency. He is socially incompetent if he is pedagogically retarded or if he does not conform to the standards of conduct for children of his age. As the measure of pedagogical retardation, I have taken the relation between a child's chronological age and his grade in school, assuming that a child of seven should be in the first grade, a child of eight in the second grade, and so on. A child who is pedagogically retarded is a restoration case if he can be restored to the grade to which he belongs according to his chronological age. In addition he must conform to the standards of conduct for children of that grade.

In the summer of 1915, from the records of children examined at the Psychological Clinic fifteen children were selected who appeared from the examination to be restoration cases. These fifteen children were placed in an observation class conducted by the Psychology Department for the six weeks of the summer session, and were given instruction under two teachers who had been especially trained. Besides the academic work the children had training in handwork, including bench work. They had physical exercises and folk dancing. They were served a hot lunch at noon. They had outdoor games and trips around the University grounds. If a child needed medical attention, he was given it at the University Hospital. The children were under constant observation for the six weeks to determine whether they really were restoration cases.

This is a study of Bertha B, one of these fifteen cases. In May, 1913, she was first brought to the Psychological Clinic because of troublesomeness and laziness in school. So she was already diagnosed by the school as socially incompetent because of nonconformity and was brought to the Clinic for confirmation of this diagnosis. Bertha has been under the observation of the Clinic ever since May, 1913. The Social Service Department has made many calls both at the school and the home. She was re-examined at the Clinic in February, 1915.

When Bertha first came to the Clinic in May, 1913, although she was then almost seven years of age, she had only the height and weight of a five-year-old girl. She was well-proportioned in spite of her small size. The right shoulder was low. Her lung expansion was excellent. In the examination she was prompt, lively, and intelligent. She tried many of the tests on the examiner, imitating his mannner very well. She was quick and alert, excitable and very talkative. Her school work was poor for first grade. She recognized only very simple words in reading and in number work showed a tendency to guess at results rather than work them out. Yet she was able to work out simple sums when she applied herself. No specific mental defects were discovered in the examination except that her tendency to guess at results in number combinations suggested a deficiency of analytic and persistent attention. She was diagnosed as "not mentally defective" and a special class was advised.

The school report at the time of this first examination was not unfavorable as to the quality of her work. She was then in the first grade, having entered in September, 1912. Her teacher in May, 1913, reported that she was "a perfect nuisance and would not work." In October of the same year she was reported as doing well in school, but this latter report was given when a special class for Bertha was being urged and the principal was unwilling to place her name on the list. By November, 1914, the principal himself was urging a special class as Bertha was "not getting along well in a regular grade." But Bertha's parents would not give their consent to her being placed in a special class. She was promoted to second grade in June, 1914. In February, 1915, the principal reported that he had tried Bertha under five different teachers but without result. She seemed to him nervous and backward, although not feeble-minded. He was considering having her excluded from school since her parents would still not consent to a special class for her.

Bertha was then given a second examination at the Clinic. Her age was eight years and eight months. Again no specific mental defects were discovered, except the same defects of attention discovered in the earlier examination. In school subjects she showed considerable retardation. Her reading was good first grade reading, her mistakes being largely careless ones. Her spelling was about the first grade level. Her number work was poor even for first grade. She was able to do only the simplest combinations either abstractly or concretely with colored blocks. Transference to a special class was again urged and attendance at the University Restoration Class recommended.

A school report was obtained in June, 1915. Bertha's average standing was 60, with arithmetic, spelling, and penmanship unsatisfactory. Her effort was poor and her conduct sometimes poor, sometimes fair. The teacher reported that she was lazy and could not apply herself or concentrate. She had memorized several poems and "can draw when she puts her mind to it, but usually smears and crumples her paper before it is handed in." She came to school hungry and dirty. There were sixty-eight children in the room, which was dark and gloomy.

A rather detailed report of Bertha's work in the restoration class during the summer of 1915 follows.

Restoration Class of 1915.

Arithmetic

At the opening of the session, Bertha was able to write numbers up to two digits from dictation and to read them when written. She could also count by ones and by fives to fifty. She was able to add the simplest combinations like 2 and 2 or 4 and 1 abstractly but did not know how to obtain the results concretely. She was taught addition by making it as concrete as possible. She was allowed to make cakes in the sand and then sell them to one of the other children, adding up her results on the number frame. This method served the further purpose of arousing her interest in addition through her interest in the sand table.

Bertha was very soon able to add concretely either with the number frame or by making marks on the board or on paper. She was inclined to be more interested in the method of obtaining the result than in the result itself. She liked to add by making nests of colored eggs on the board like the younger children and had to be forced to use the more abstract method. She was very careless even when obtaining results concretely, *e. g.* 6 plus 5 equals 10, and she was very easily distracted. She was usually more interested in what was going on about her than in arithmetic.

By the beginning of August she had learned a few of the combinations like 7 plus 4, 5 plus 3 abstractly, but she was not serious about her work and would answer at random even with combinations that she was able to do abstractly. In a lesson on short division in which the class was taught to divide 2 into 2 to 10 concretely, Bertha was one of the first to comprehend and very readily learned the combinations without the need of appealing to concrete aids. But even after learning the combinations, she answered at random until the teacher spoke sharply to her. Then she buckled down and answered correctly. In the afternoon she did on paper in about one minute all the combinations she had learned in the morning.

Bertha accomplished very little in number work during the summer session. She learned to obtain results in addition and in division concretely and also learned a few combinations in addition and division abstractly. When she gave good attention to her work, she learned simple combinations in arithmetic rather readily, but would answer at random even when she knew the combinations abstractly. She showed little interest in numbers and made almost no effort to concentrate her attention upon the work. Her lack of persistence was very marked. She would leave her work with the slightest excuse or with none at all. Occasionally, however, when forced to by the teacher, Bertha would concentrate her attention upon her work and persist for short periods, but as soon as the teacher's attention was directed elsewhere, Bertha would give a minimum of attention to her number work and would look about her for something which appealed more to her interests. As a result her work was uneven. Most of her number work was very inaccurate but during these occasional short periods of good concentration she would obtain correct results quickly and readily.

Reading

The first reader which Bertha had been using in school before the summer session, was far too easy for her. She was given a second reader during the session which she read easily. Her recognition of words is good, but because of inattention she makes many careless mistakes, such as leaving off or adding final letters or misreading one word for another similar one. Her lack of persistence of attention is very great. To keep Bertha's attention upon a reading lesson throughout the lesson required almost the entire attention of the teacher. Her persistence of attention is sufficient while she is reading herself but she does not give attention for any length of time while others are reading. If forced to attend while others are reading, she constantly interrupts by calling out words and makes little effort to control herself in this respect. Her interest in reading, although greater than her interest in arithmetic, is still deficient and succumbs to her greater interest in her surroundings. The imagination which she displays in reading is good. She shows sufficient ability both to produce images and to associate them, but her imagination is lacking in complexity. In answering questions about her reading she draws upon her fancy instead of following out the line of thought of the author. Her fancy is not sufficiently controlled by her memory. In this respect she is like a much younger child. She comprehends what she reads and her powers of observation are good whenever her attention is upon her reading.

Spelling

Her spelling is only fair. She is by no means as proficient in spelling as in reading. This is due, I believe, to the fact that recognition of words requires less close attention than the exact spelling of a word. She has sufficient knowledge of phonics and sufficient intelligence to help her in spelling new words. But, unfortunately for Bertha, a knowledge of phonics alone is not sufficient to spell words in the English language. Her imageability and associability are sufficient, I believe, for good spelling; nor is she deficient in retentiveness, but she does not concentrate her attention to a great enough degree upon her work, nor does she persist for a long enough time to conquer the difficulties of spelling English words.

Language

Bertha's oral language is better than her written language. This is chiefly because of her lack of proficiency in spelling and because written language requires greater concentration of attention than oral. Bertha shows in her language work good powers of observation and some intelligence in her answers to questions; but she shows the same deficiency in complexity of imagination that she displays in her reading, as she makes no attempt to control her fanciful imagination. If a language lesson is too long it makes too great a demand on her persistence of attention, and her interest wanes.

Handwork

Bertha chooses by preference the handwork which is easy for her, like stringing beads or spool work. Her lack of persistence of attention was very evident in her handwork. She worked intermittently, discarding the handwork for anything which appealed more to her interest at the time. She did not succeed in completing even one piece of handwork during the session; not that her interest was deficient but it was transitory. Her movements were well controlled and coördinated. Nor did she lack initiative; she needed no help in deciding what she wanted to do and would work on the handwork of other children. She showed ready comprehension in learning new handwork. She showed little planfulness, and showed her intelligence rather by contriving to do what she had been forbidden to do or by doing her handwork in periods intended for other lessons. She was very untidy in her handwork as in everything else.

Physical Exercises

At first in the exercises she depended almost wholly on imitation and was unable to keep up with the rest of the class. Her interest soon flagged and she wished to give up. She showed much energy but wasted it in superfluous movements, and was easily distracted by her surroundings. She often paid no attention to the signal to stop, but went right on until she herself was ready to stop.

By the third week she had learned some of the commands and was able to interpret them without depending on imitation. From then on to the end of the session she learned more and more commands and was able more and more to depend on interpretation rather than on imitation. But her work was very uneven because of the varying amount of attention she gave to it. She constantly watched the other children and "bossed" them, and her own work suffered. She was not always ready to start on signal nor did she always keep in time.

She showed then good energy in her physical exercises and her rate of movement was rapid. She appeared to fatigue rapidly but this apparent fatigue was probably due to a lack of persistence of attention and to waning interest. Her concentration of attention was uneven, usually poor but sometimes good. Her attention was very alert. Her movements were well controlled and co-ordinated. Her initiative was good. She was usually responsive but her responsiveness lacked complexity. She would sometimes comprehend part of the movement but not all, and would execute the part she had comprehended without seeming to realize that she was not making the entire movement. Her response was often like that of a younger child. This lack of complexity of response may be due somewhat to a defective imaging of the movement to be executed and to a defective associability, as her errors were made with the more complicated commands. Her observation was good. She watched the instructor or, if he were not in sight, other members of the class. Her understanding was not sufficient for the interpretation of new commands and she was almost wholly dependent upon imitation until she had memorized the movement. After memorizing the movement, her understanding was sufficient for execution of the commands without imitation. I should say her understanding as shown by her behavior during physical exercises was normal for her age, or at least only slightly subnormal. Her retentiveness as shown by her memory of commands was good.

Folk-dancing

The folk-dancing made much more of an appeal to her than the physical exercises. She learned the steps readily and changed quickly from one step to another. Her movements were quick and graceful and she thoroughly enjoyed the work. Her concentration and persistence of attention were good. Her attention was very alert. Her movements were well controlled and co-ordinated. Her initiative was good. Her responses were sufficiently complex and vivacious. Her observation and memory were good.

Attitude toward other children

By the end of the first day, Bertha had established herself as "boss" of the younger children. The three smallest children and an idio-imbecile of eleven were her especial responsibility. The idio-imbecile greatly interested her, as he was the biggest boy who would submit to her bossing. Her jurisdiction extended over both work and play. She bossed the games, taught Charles to articulate and supervised William's gymnastics. She had little respect for the rights of the other children. She would pull down their houses in the sand, take their rulers and pegs and work on their handwork. The younger children did not resent her attitude toward them, but her popularity with the older children suffered.

Attitude toward the teacher

Bertha has very little respect for authority. She is always slow to obey and is even openly disobedient when she dares. When the class was told to clear the desks, Bertha would open her drawer, or she would use ink when the class had been told to use pencil. She showed great ingenuity in figuring out just how far she dared go in defying authority. One day she changed her seat during the rest period, watching the teacher to see if it were safe to make a second change. Again, when refused permission to string beads by one teacher, she went to another teacher and received the permission.

Attitude toward class organization

Bertha is not willing to submit herself to class discipline, to give up her individual inclinations for the good of the whole. The "ego" looms large on her horizon. She can be very responsive when the thing the class is doing fits in with her own inclinations. Then she will tell stories and sing songs and thoroughly enjoy the class activities. Then again, she will respond slowly or not at all to class commands, take out her handwork when the rest of the class is singing or working at academic subjects. The influence upon her of an audience such as was provided by the observation class of teachers is very bad. She constantly played to the gallery and tried to attract attention to herself. Bertha's attitude toward class discipline was very little better at the end of the six weeks than at the beginning. She was still far from ready to submit herself to class organization.

School report, Nov., 1915

Bertha's work for October averages 70 with no subject unsatisfactory. Her effort is fair and her conduct good. The teacher reports that Bertha is really trying and even stayed after school to ask the teacher to help her improve her writing. She comes to school clean and tidy. This improvement in Bertha is really remarkable, in spite of the fact that this is her third term in lower second grade. This is the first favorable school report that has been made of Bertha since October, 1913.

I will now summarize upon Dr. Witmer's chart used at the Psychological Clinic, the mental qualities which Bertha has displayed. This summary is based on the two mental examinations, the school and personal history and more particularly on the observations made in the restoration class of 1915.

In explanation of the chart I will say that to evaluate the qualities a scale of one to five has been used, five being the highest, one the lowest, and three the median. Intelligence is used in the specific sense of ability to solve a new problem.

DESCRIPTION OF THE CHART.

Financial condition
Care
Discipline

The financial condition of the family is below the median. The family is not able to subsist at present without outside aid, although previous to February, 1915, they would accept no help. They seem to have become pauperized by the assistance which has been given them. The mother helps to support the family by doing washing and is very much overworked.

The whole family is undernourished. The house is very dirty and poorly ventilated.

Discipline in the home is severe but probably ineffective.

Height and Weight

Bertha's height of 106.4 centimeters is the mean for a girl of five years; her weight of 19.7 kilograms is the mean for a girl of six years.

Growth

On the species scale, she has no signs of atavism. On the age scale Bertha shows an anatomical retardation of at least three years. She does not seem like a case of simple mental retardation although in some things, specifically in complexity of responsiveness and of imagination, she is very like a younger child.

		I.	II.	III.	IV.	V.
Bertha B. Born F M	1. F. C. D.		✓			
	2. Height 106.4 cm.	✓				
	3. Weight 19.7 kg.	✓				
Growth	4. Species			✓		
	5. Age	A*				
Sex	6. Masculinity	✓				
	7. Femininity			✓		
Culture	8. Civilisation			✓		
	9. Education		✓			
Competency (social)	10. Ability		✓			
	11. Conformity		✓			
Vitality	12. Energy				✓	
	13. Rate				✓	
	14. Fatiguability			✓		
	15. Health			✓		
Attention	16. Concentration, Analytical		✓			
	17. Persistence		✓			
	18. Distribution				✓	
	19. Alertness			✓		
	20. Interest, Range		✓			
Movement	21. Control			✓		
	22. Co-ordination			✓		
	23. Initiative			✓		
Responsiveness	24. Complexity		✓			
	25. Vivacity			✓		
Imagination (general)	26 Imageability			✓		
	27. Associability			✓		
	28. Complexity		✓			
	29. " Range		✓			
Imagination (specific)	30. Observation			✓		
	31. " Range		✓			
	32. Understanding			✓		
	33. " Range			✓		
	34. Planfulness			✓		
	35. " Range			✓		
	36. Intelligence			✓		
	37. " Range			✓		
Memory	38. Trainability			✓		
	39. Retentiveness		✓			
	40. " Range		✓			
Sensitivity	41. Liminal			✓		
	42. Discrimination			✓		
	43. " Range			✓		
Proficiency	44. Efficiency		✓			
	45. Operations, Range		✓			

* Anatomical.

Culture There are no signs of primitivism on the civilization scale. On the education scale she shows at least one year of retardation.

Social competency Bertha has not at present sufficient social competency. This is due to doubtful ability and deficient conformity. The important question in regard to Bertha is whether she has sufficient ability to be able to attain full social competency and whether, by some form of not too expensive special treatment, her conformity can be brought up to normal.

Vitality She has great energy and her rate of movement is rapid. She appears to fatigue quickly but this apparent fatigue may be due to lack of persistence of attention or to lack of interest. Her health appears to be good in spite of her retarded physical development.

Attention Her concentration of attention is variable, Most of the time it is poor, but at times and for short periods it is good. When her concentration of attention is good, it seems to be dependent on interest or on outside force. Her persistence of attention is consistently deficient. Distribution of attention is good and her attention is normally alert. Her range of interests is limited and her interest in any one thing, with the possible exception of games and folk-dancing, is rarely maintained for any length of time, showing the influence, probably, of her lack of persistence of attention.

Movement Her movements are well controlled and coordinated and she shows good initiative. In responsiveness she is vivacious but lacking in complexity. Her responses are like those of a younger child.

Imagination Her imageability and associability are sufficient for a girl of her age, but her imagination is lacking in complexity. It is too fanciful and is not sufficiently controlled by memory. It is the type of fanciful imagination which one sees in a younger child.

Imagination (specific) Her powers of observation are good although the range is limited somewhat by her narrow range of interests. She shows less inclination to exercise her powers of observation in academic subjects than in activities like folk-dancing and games which appeal more to her interest. Her understanding and range of understanding are normal. Her planfulness and intelligence are good, although here again the range is limited by her interests. In trainability of memory, Bertha is probably slightly deficient. Her associability and imageability are sufficient for a good memory, but she is deficient in persistence and usually in concentration of attention. The trainability of her memory depends largely, then, on the train ability of her concentration and persistence of attention. Her retentiveness is also deficient and the range of retentiveness is even more deficient. Where good persistence of attention is essential to retentiveness, as in spelling and arithmetical combinations, her retentiveness is deficient; but where a less degree of concentration and persistence of attention are sufficient, as in the recognition of words in reading, her retentiveness is good.

Sensitivity

Her sensitivity, so far as tested, is normal both as to limen and discrimination. It has been tested only for vision, audition, and kinaesthesis and then incompletely. There is nothing in her general behavior, however, to suggest a deficiency in sensitivity.

Proficiency

Bertha has not the proficiency of a normal nine-year-old girl. This is due to deficiency both in particular efficiencies and in the range or number of operations. She is not proficient in any school subject, with the possible exception of reading and language, and she is markedly deficient in spelling and number work.

ETIOLOGY.

We have to account for her deficiency on the ability and conformity scale, and for her physical retardation. The birth history is negative: while her birth was instrumental, labor was easy and she was not injured. She suckled naturally. Nor does her medical history throw much light on the etiology. After diptheria in 1911 she had some trouble with a running ear, but this trouble has disappeared and her hearing is normal. The combination of whooping cough and bronchial trouble seems serious in view of the fact that her mother is tubercular, but her chest expansion is excellent and there are no indications of tuberculosis. There is a history of indigestion in babyhood which suggests the probability of malnutrition, especially as she was bottle-fed. This is significant in connection with her physical retardation and deficient ability.

In the family history there is a report of one miscarriage, but as the Wassermann reaction is negative in Bertha's case, syphilis is excluded. Two children died in infancy but the information is too meager to explain the cause of their death. There is a baby now a year old who is normal so far as can be ascertained. The mother is tubercular but there is no evidence that she had tuberculosis at the time of Bertha's birth, and the mother herself reported that her health was good while carrying Bertha. The father has diabetes, which suggests a glandular disorder. This may be of importance in explaining the physical retardation and deficient ability, but Bertha presents no symptoms of any specific glandular disorder. There are no anomalies of growth: she is well proportioned in spite of her small size.

The care which Bertha has received is of considerable importance to the etiology. While the family had never required outside aid previous to February, 1915, they have always been very near the poverty line and the probabilities are that Bertha has always been undernourished? This, especially combined with the report of indigestion in babyhood, is significant in accounting for her doubtful ability and retarded physical development.

School conditions I think we can exclude as an etiological factor in her possible deficiency on the ability scale. She has never changed schools, and while the school is crowded, other children have made normal progress under the same conditions.

As to conformity, the severe but unintelligent and probably ineffective discipline in the home is the important etiological factor.

Is Bertha a restorable case? Can she, in addition to doing as good work as the average child in the grade she is now in, make up her one year's retardation? Can she be brought to conform herself to school room conditions so that she will profit by the instruction given without being a disturbing factor to the other children, as she is at present? And can this restoration be made without too great expense to society? One must remember that while in reading she is possibly slightly above the second grade level, in number work and spelling she is not even up to the second grade level. While she has good intelligence and good imagination she is deficient in attention, especially in persistence of attention. She also lacks complexity both of responsiveness and of imagination. Her defective attention has affected her retentiveness. She shows no inclination to conform to class discipline and very little desire for self-control. Little help can be expected from her home as her mother is overworked and probably lacking in proficiency. It seems unlikely, when one considers all these factors, that Bertha can ever be restored to the grade to which she belongs according to her chronological age. Under a very good teacher who could give a disproportionate amount of time to Bertha, there would be a chance, it seems to me, of her ultimate restoration. But this would be too expensive and also unfair to other children even under special class conditions. Her school report for this fall is favorable, but two months of good behavior is hardly sufficient to counterbalance her past history.

Even if she continues to do good work, a possiblity which we certainly must recognize, she is doing what is good work for an eight-year-old but not for a nine-year-old.

While the chances of Bertha's being restored to the grade to which she belongs are slight, does this mean that she will not have sufficient social competency to earn her living? Unskilled laborers are able to earn a living for themselves and family, and yet it is probable that their ability is not greater than that represented by the fifth grade in school. Bertha spent two years in the first grade and will spend at least as long a time and probably a longer time in the second grade. But even so, the chances of her being able to complete the fifth grade by the time she is sixteen are excellent under special class conditions. Her chances of sufficient social competency so far as conformity is concerned are not so good. At nine years of age she is very badly conformed. Her mother has very little control over her, and her teachers, on the whole, very little more. If Bertha is not better conformed at sixteen than she is at nine she will be a serious problem to society, and I believe it will be cheaper for society to attack the problem of her restoration to sufficient conformity now instead of waiting until she is sixteen. While her restoration to sufficient conformity is somewhat doubtful, it is by no means hopeless. Her present improvement in conduct is hopeful whatever its cause. The chances certainly warrant an attempt at restoration.

This attempt at restoration should be made under special class conditions. Removal to a special class is necessary, as much for the sake of the other children to whom she is a disturbing factor, as for Bertha's sake. It will be easier for her to conform to the discipline of a small class than to that of a larger. A special class will be of benefit to her because of the unevenness of her work. In a special class she can read in a third reader and do first grade work in spelling and arithmetic.

To sum up, I believe all attempts to restore Bertha to the grade to which she belongs according to her age should be given up. Instead, an attempt should be made under special class conditions to bring her up to the fifth grade level of school proficiency by the time she is sixteen and also to restore her to sufficient conformity so that she will not be a menace to society. I believe her chances of reaching the fifth grade level in school proficiency are good, and that while her chances of being restored to sufficient conformity are not quite so good, they are good enough to warrant an attempt at restoration. I think, further, that if Bertha makes good our prognosis by reaching the fifth grade level of proficiency and is restored to normal conformity we will be obliged to call her a restoration case.

THE FORM BOARD ABILITY OF YOUNG DEAF AND HEARING CHILDREN.

By Rudolf Pintner and Donald G. Paterson,
Ohio State University.

In October, 1914, the form board ability of the entering deaf pupils of the Ohio State School for the Deaf was measured and compared with that of the entering pupils in the first grade of a public school attended by hearing children from homes of laboring men. Twenty deaf children, aged seven, and twenty hearing children, aged six, were so tested. Again, in October, 1915, the same children were retested. Eighteen of the twenty deaf children were available, while only fourteen of the twenty hearing children could be located. The others had moved to other parts of the city. We have, then, the records for eighteen deaf children and fourteen hearing children on the Seguin Form Board, tested on entering school and again one year later. We also have the records for seventeen deaf children, aged seven, who entered school in September, 1915.

The Form Board used was made from the description given by Sylvester,[1] but it differs in this respect,—the insets fit in flush with the board proper. Hence, our results are not comparable with either the norms of Goddard[2] or of Sylvester.[3]

We do not maintain that our modification of the form board is better or worse than the standard one in use. It requires a greater degree of muscular co-ordination to perform our test and therefore it is probably testing more factors than the standard board. At any rate the high correlations between performances separated by a year's interval indicate the reliability of the board we used.

Each child was given three trials and the number of errors and the time required were recorded for each trial. The total and the average number of errors made on the three trials as well as the total and the average time for the three trials was then found. Error and time deviations were calculated and from these the average deviations for each group were derived. Each group of children was also arranged according to the relative position of each individual within the group. From this the rank correlation between the first and second year standings in this test was obtained.

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[1] R. H. Sylvester. The Form Board Test. The Psychological Review Monographs, Vol. XV, No. 4, Sept., 1913, pp. 1–56.

[2] H. H. Goddard. The Form Board as a Measure of Intellectual Development in Children. *The Training School*, Vol. IX, June, 1912, p. 4.

[3] *Op. cit.*, p. 48.

The deaf children were shown the board with the holes empty. By motioning with the hand the experimenter indicated that a block was to be placed in each hole. The child then began the test. The situation was readily interpreted by the children and misunderstanding of the directions was a negligible factor. The hearing children were introduced to the tests by the verbal directions, "Put these blocks in their right places, as quickly as you can."

Results are given in tables I and II. Table I gives the average number of errors for each group. Table II presents the averaged time records. In table I the first column gives the age group tested, the second column the number of pupils tested; column three the average number of errors for the first trial; column four the average deviation in errors for the first trial, while the succeeding columns give similar data for the second and third trials. Column nine gives the average number of errors for all three trials and column ten those for one trial.

TABLE I. AVERAGE ERRORS.

Age Group	Number	Trial I	Av. Dev.	Trial II	Av. Dev.	Trial III	Av. Dev.	Av. of 3 Trials	Av. of 1 Trial
Hearing age 6........	14	2.9	2.6	3.0	2.5	1.5	1.7	7.5	2.5
" " 7........	14	1.2	0.9	1.4	1.3	0.8	0.9	3.3	1.1
Deaf " 7........	18	3.4	3.1	0.9	0.9	1.5	1.4	5.7	1.9
" " 8........	18	1.2	1.2	0.9	1.2	1.0	1.0	3.0	1.0
" " 7........	17	1.3	1.0	1.0	0.8	1.0	1.0	3.6	1.2

TABLE II. AVERAGE TIME.

Age Group	Number	Trial I	Av. Dev.	Trial II	Av. Dev.	Trial III	Av. Dev.	Av. of 3 Trials	Av. of 1 Trial	Av. Dev.for 1 Trial
Hearing age 6...	14	71.1	23.4	61.1	23.8	47.0	8.3	179.7	59.9	16.6
" " 7...	14	46.4	15.5	34.3	8.2	31.9	5.8	112.6	37.5	8.7
Deaf " 7...	18	72.9	20.9	50.3	10.2	50.1	12.7	173.3	57.7	12.2
" " 8...	18	39.4	9.1	29.4	5.3	27.6	5.1	96.4	32.1	5.9
" " 7...	17	49.7	9.9	42.6	8.2	40.4	10.9	134.8	44.9	8.8

Table II gives similar averages for the time records. An additional column gives the average deviation for one trial.

We find by an analysis of table I that the seven-year-old deaf child makes more errors on the first trial than does the six-year-old hearing child but on the second and third trials the reverse is true. For all three trials the six-year-old hearing child makes more errors than the seven-year-old deaf child. With regard to time we see much the same thing in table II. However, the superiority of the deaf group over the hearing group is so slight as to warrant the statement that the seven-year-old deaf child of the entering class in 1914 is equal to the six-year-old hearing child or about one year retarded on this test.

Now considering the effect of a year's development it seems that the deaf child has made a relatively greater gain than the hearing child with respect to time but not with respect to errors. In table I we find that the hearing child made a gain of 56 per cent in the reduction of his errors for all three trials (a gain of from 7.5 in 1914 to 3.3 in 1915). Similarly the deaf child made a gain of 47 per cent (5.7 in 1914, and 3.0 in 1915). In table II in regard to time we find the reverse to be true. The hearing child made a gain of 32 per cent (from 179.7 [av. time for three trials] to 112.6). The deaf child gained 44 per cent (from 173.3 to 96.4). The results seem to indicate that the year's growth had a slightly greater effect in increasing the form board ability of the deaf child than of the hearing child. The average deviations in time for one trial are also smaller for the deaf child than for the hearing child. This means that the deaf children tended to cluster around the mean more closely than did the hearing children. In other words the deaf children tested were more homogeneous in form board ability than the hearing children. The deaf children aged eight are, however, still backward.

The deaf children aged seven who were tested for the first time in October, 1915 (shown on the last line of table II), seem to be superior to those who entered the previous year. This is significant and indicates the value of annual testings. Each annual testing of the entering class would in time give valuable norms which could well be used in determining the educational prospects for a given class. Some classes might need radical classification into groups while others might progress as a unit.

The Spearman Correlation "Foot-Rule" or R-Method[4] was used in determining the degree of correlation existing between ranks on the test in the first year and the ranks in the second year. For the deaf children the Spearman R value was .44 which equals Pearson's r value of .64.[5] This r value is eight times the P. E.,[6] which makes the correlation reliable. For the hearing children a still higher correlation was found. The Spearman R was .68 which corresponds to the Pearson r value of .88 with a P. E. of .0486. The Pearson r is 18 times the P. E. and thus indicates a very reliable correlation. These correlation values reassure us as to the validity of the test, for they indicate that although all the pupils gained greatly from one testing to the other, yet they maintained their relative ranks. In other words those relative ranks are not due to chance but to some native ability which is more or less permanent. The correlation for the deaf children is lower than that for the hearing children because one child made a tremendous gain. This gain was probably due to some physiological change in the growth of that child's nervous system, for the teacher reports that his whole manner and attitude seemed to change suddenly, his arm and leg movements seemed to become more nicely co-ordinated and he has made progress out of all proportion to the rest of the children.

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[4] G. M. Whipple. Manual of Mental and Physical Tests. Baltimore: Warwick and York, 1914. Part I, pp. 42–43.

SUMMARY.

The results of this paper seem to indicate that the average entering class of deaf children is apt to be about a year backward in form board ability and that this backwardness is not made up during the first year in school. Further, the ability of the entering classes varies to a considerable extent, indicating probably the need of adjusting the educational program to the ability of the particular class. The results point to the desirability of establishing norms for various tests, so that entering classes can be better understood, in so far as the mental ability of an individual or group determines the extent to which an educational program can go in modifying and moulding its materials.

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[5] *Ibid.*, p. 44.

[6] *Ibid.*, p. 40.

THE PUBLIC SCHOOLS AND THE ABNORMAL CHILD.*

By K. J. Hoke,

Second Assistant Superintendent Public Schools, Richmond, Va.

One of the criticisms which is often leveled against the public school system of the United States is that the instruction is too mechanical; that the public schools tend to treat all children as if they were alike, both physically and mentally. The tendency in modern education to reach the individual needs of the children should meet this objection. The administrators of our public schools are demanding that the instruction in the class-room be made more and more individual, that the teacher shall plan her instruction to reach the individual child instead of planning it to be presented to a large number of children at once, and assuming that all will profit alike from it.

In following out this principle of instruction, one of the natural consequences has been that students of education are beginning to know more of the individual abilities of children and are planning instruction to train them accordingly. In this movement the psychologists are leading the way and are providing much information that serves as a basis for more scientific treatment of children. This information shows the wide range of abilities existing among children of the same class in spite of the fact that they have been so placed on the assumption that they were of the same ability. The following figures show the wide range in ability to add correctly in eight minutes a certain number of addition examples in a 4A grade in the public schools of the city of Richmond:

No. children.	No. examples right.
2	9
1	7
1	6
1	5
2	4
6	3
1	2
2	1
3	0

A further illustration of this principle is shown by the following figures which give the different mental ages according to the Binet-Simon Scale in a 3B grade of the same school system:

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* A report to the Virginia State Board of Charities and Corrections for submission to the General Assembly of 1916.

No. children.	Mental ages.
3	8
5	9
20	10
8	11
1	12

Since this wide range of ability exists among children of a single class, manifestly it is the function of the public schools to determine its extent. If a school system attempts this problem, what means are available for its solution?

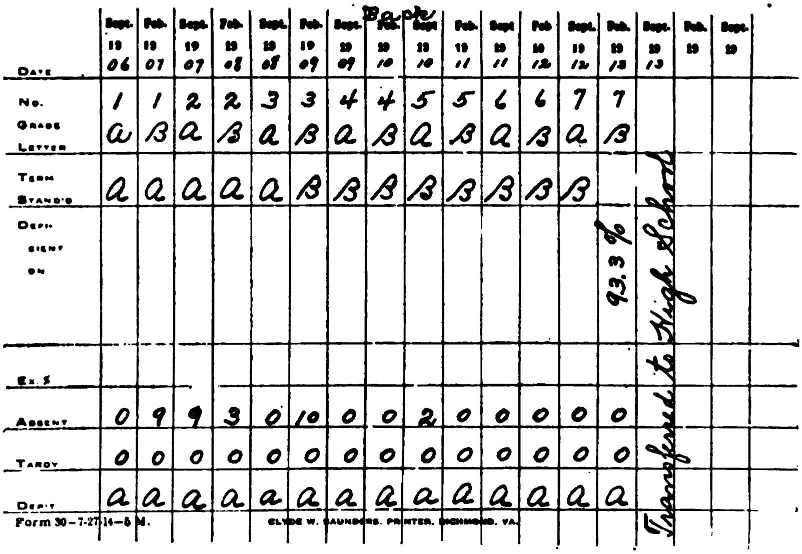
In the first place, the grade and the chronological age of the child should always be available. When this information is arranged in a table form, it enables the teacher to locate the child who has fallen behind his grade. The following table is given to illustrate this point:

Grade	Chronological Ages								
	7	8	9	10	11	12	13	14	15
1A	...	...	5	6	...	...	...	...	...
1B	...	...	2	3	2	1	2	1	...
2A	...	...	1	2	4	...	...	...	...
2B	...	...	...	4	7	3	1	2	...
3A	...	...	...	...	4	5	2	...	...
3B	...	...	...	...	3	3	2	3	1

The normal ages for the different grades are as follows: 1A and 1B grades, 7 years; 2A and 2B grades, 8 years; 3A and 3B grades, 9 years. All of these children are above these ages.

After the child is located in the grade, the next source of information is the cumulative record which gives his progress in school. If a child is promoted at the end of each term, he would complete the elementary schools in seven years, and his progress will be shown by the accompanying record card which is the history of a child's progress in the Richmond Public Schools (see No. 1).

This child entered the 1A grade in September, 1906. In February, 1907, he was promoted to the 1B grade, and so on throughout his entire school life. If a child is not promoted each term, his record card will show a different progress. The accompanying



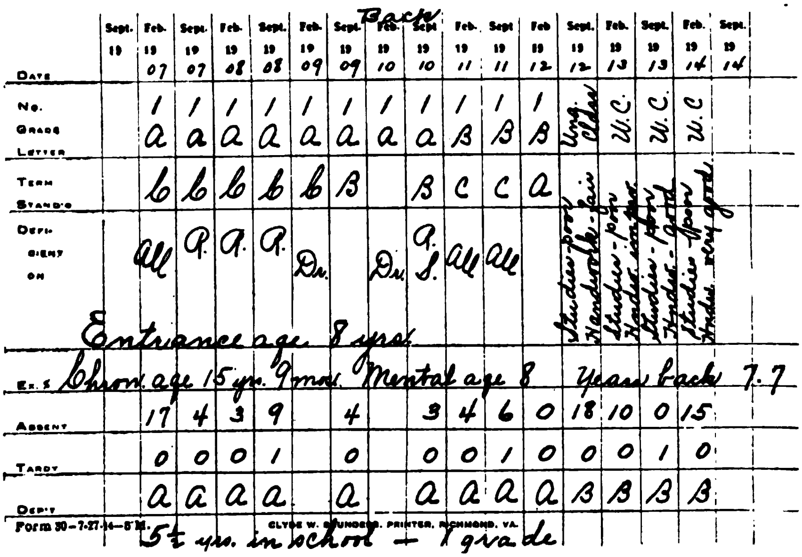
Back

Date	Sept. 1906	Feb. 1907	Sept. 1907	Feb. 1908	Sept. 1908	Feb. 1909	Sept. 1909	Feb. 1910	Sept. 1910	Feb. 1911	Sept. 1911	Feb. 1912	Sept. 1912	Feb. 1913	Sept. 1913	Feb. 19	Sept. 19
No. Grade	1	1	2	2	3	3	4	4	5	5	6	6	7	7			
Letter	A	B	A	B	A	B	A	B	A	B	A	B	A	B			
Term Stand'g	A	A	A	A	A	B	B	B	B	B	B	B	B		Transferred to High School		
Deficient on														93.3%			
Ex. $																	
Absent	0	9	9	3	0	10	0	0	2	0	0	0	0	0			
Tardy	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Dep't	A	A	A	A	A	A	A	A	A	A	A	A	A	A			

Form 30-7-27-14-5 M. CLYDE W. SAUNDERS, PRINTER, RICHMOND, VA.

No. 1.

record shows that the child spent 8 terms or 4 years in the 1A grade and 3 terms or 1½ years in the 1B grade, when he was taken into the ungraded class. At that time he was 15 years and 9 months old, had been in school 5½ years, and had completed the work of *one year only* (see No. 2).



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Date	Sept. 19	Feb. 1907	Sept. 1907	Feb. 1908	Sept. 1908	Feb. 1909	Sept. 1909	Feb. 1910	Sept. 1910	Feb. 1911	Sept. 1911	Feb. 1912	Sept. 1912	Feb. 1913	Sept. 1913	Feb. 1914	Sept. 1914
No. Grade		1	1	1	1	1	1	1	1	1	1	1	Ung. Class	W.C.	W.C.	W.C	
Letter		A	A	A	A	A	A	A	A	B	B	B					
Term Stand'g		C	C	C	C	C	B		B	C	C	A					
Deficient on		All	A.	A.	A.	Dr.		Dr.	A. S.	All	All		Studies-poor Handwork-fair	Studies-poor Handw. [illegible]	Studies-poor Handw.-good	Studies-poor Handw. very good	
Ex. $																	
Absent		17	4	3	9		4		3	4	6	0	18	10	0	15	
Tardy		0	0	0	1		0		0	0	1	0	0	0	1	0	
Dep't		A	A	A	A		A		A	A	A	A	B	B	B	B	

Entrance age 8 yrs.

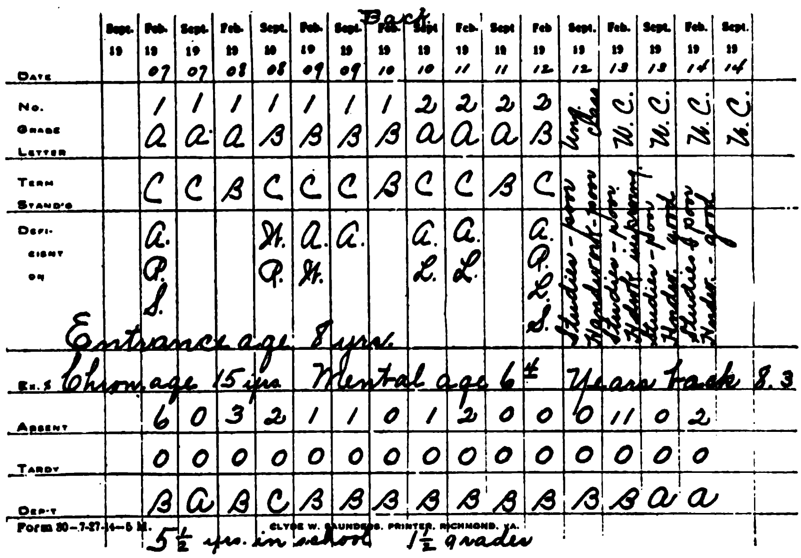
Chron. age 15 yrs. 9 mos. Mental age 8 Years back 7.7

Form 30-7-27-14-5 M. CLYDE W. SAUNDERS, PRINTER, RICHMOND, VA.

5½ yrs. in school — 1 grade

No. 2.

The progress of still another child is given to illustrate further the fact that there are certain children who cannot profit by the instruction given to the normal child. This child spent 3 terms or 1½ years in the 1A grade, 4 terms or 2 years in the 1B grade, 3 terms or 1½ years in the 2A grade, and was still in the 2B grade at the age of 15 years. He had been in school 5½ years and had completed only 1½ years of work:



Back

Date	Sept. 19	Feb. 19 07	Sept. 19 07	Feb. 19 08	Sept. 19 08	Feb. 19 09	Sept. 19 09	Feb. 19 10	Sept. 19 10	Feb. 19 11	Sept. 19 11	Feb 19 12	Sept. 19 12	Feb. 19 13	Sept. 19 13	Feb. 19 14	Sept. 19 14	
No. Grade Letter		1 A	1 A	1 A	1 B	1 B	1 B	1 B	2 A	2 A	2 A	2 B	Ung. Class	W. C.	W. C.	U. C.	U. C.	
Term Stand'g		C	C	B	C	C	C	B	C	C	B	C	Studies - poor Handwork - poor	Studies - poor Habits improving	Studies - poor Handw. good	Studies - poor Handw. - good		
Deficient on		A. P. S.			H. P.	A. H.	A.		A. L.	A. L.		A. P. L. S.						
Ex.'s	Chron. age 15 yrs. Mental age 6+ Years back																	8.3
Absent		6	0	3	2	1	1	0	1	2	0	0	0	11	0	2		
Tardy		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Dep't		B	A	B	C	B	B	B	B	B	B	B	B	B	A	A		

Entrance age 8 yrs.

Form 30—7-27-14—5 M. Clyde W. Saunders, Printer, Richmond, Va.

5½ yrs. in school 1½ grades

No. 3.

From these records the following points should be observed:

1. The constant repetition of the same grade kills a child's interest.

2. Instruction for children who cannot profit from it is not economical and business-like.

3. The presence of such children in a class-room hinders the progress of children who can profit from the instruction of the grade.

The next means of determining the mental ability of children is through mental and physical tests. One of these tests which is widely used is the Binet-Simon Measuring Scale. This test, in the hands of a skillful examiner, is a helpful aid in determining a child's mental ability.

Figure 1 is a graphical representation of the results from the Binet-Simon Scale applied to all the children in the first four years of three fairly representative schools in the city of Richmond. The significant thing shown in this figure is that 19 children or 2.6 per cent were four or more years mentally below their chronological age; and that 103 children or 13.8 per cent were two and three years mentally below their chronological age. It is commonly held that children who test three or more years back are feebleminded. A more liberal classification is used in Richmond, as shown in the above graph. The policy has been to place those who test four or more years back in classes of 15 children each, and those who test two and three years back in classes of 20 children each.

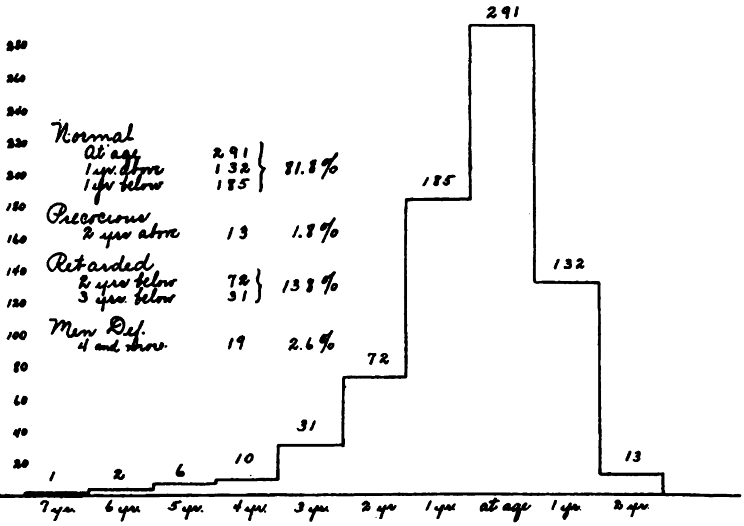


FIGURE 1.

RESULTS OF BINET-SIMON TESTS OF 743 CHILDREN IN RICHMOND, VA.

It is true, however, that the majority of the 2.6 per cent are or will become permanently mentally arrested, and even some of the 13.8 per cent. Consequently the number of feebleminded children in the public schools is a problem of considerable proportions.

As a usual thing, the children of the latter group can profit from the instruction given in the regular class. Most of these children have the normal amount of mentality, but have fallen behind because of late entrance, poor attendance, ill health, etc. All that is needed to place them on their feet is a little individual instruction. That these children do profit by the instruction given to the normal child is shown in figure 2.

At the beginning of the second term, 1914, there were 72 children in four classes. At that time all of these children were too old for the grades in which they were working. By June, 12.5 per cent of them had caught up with their grades.

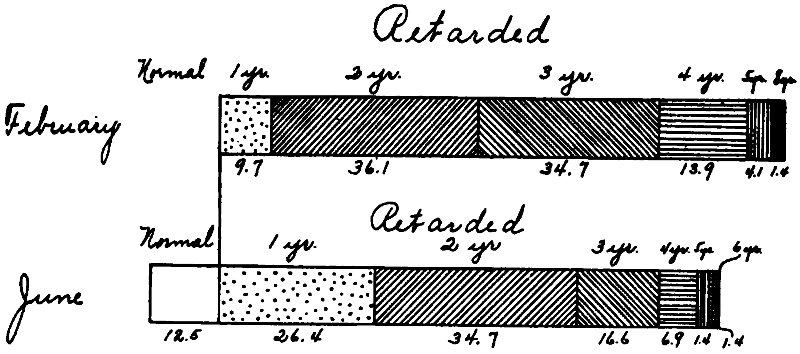


FIGURE 2.

REDUCTION IN OVERAGENESS OF 72 CHILDREN IN 4 SPECIAL CLASSES, FEBRUARY–JUNE, 1914.

These classes do not differ much from the regular class except in numbers. In some cases considerable emphasis is placed on industrial work, especially in order to arouse a child's interest. It is true, however, that some children are placed in these classes who cannot profit from the instruction given to normal children. They are the borderline cases which become permanently arrested and must be provided with instruction of a different nature.

In classes of fifteen children each the mentality is much lower, as represented by figure 3, which shows that all the children are four and more years below and are located at the lower extremity of the curve.

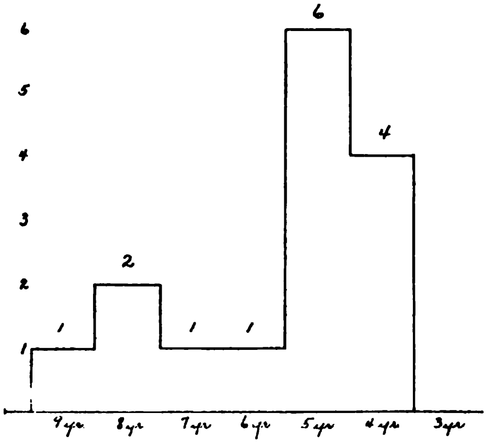


FIGURE 3.

YEARS BELOW NORMAL OF INDIVIDUALS IN ONE CLASS FOR MENTALLY DEFICIENT CHILDREN IN RICHMOND, VA.

These children can profit very little from the instruction given in the regular class. In fact, few of them can read beyond the second or third reader. Progress is not expected of them from this course. Their work is almost entirely industrial and centers around mat and rug weaving, woodwork, handwork, sewing, cooking and serving meals, crochet work, gardening, etc. Their number-work, language, and reading are based on their industrial work, e. g., number-work is based on estimating the cost of their daily lunch, the amount of material in and cost of their rugs and mats, the cost of planting their garden, etc. Their language work consists in writing the daily menu for the lunch, writing the order for the store, writing advertisements for sale of articles made, etc. Habits of industry, orderliness, and self-control are among the big things to be taught these children. Some skill can be acquired. Interest has been aroused in this work by selling as many of the articles made as possible, and permitting the children to share in the proceeds. During the second term of the session 1914–15, one of these classes, after paying for the supplies, had about $8.00, and another about $12.00, for distribution to the members of the class.

At the beginning of the session 1915–16, the Richmond Public School System established a center for handling these children by combining four classes in one building. This plan offers an opportunity for better grading and more practical work. In addition, a psychological examiner has been employed to give a stated amount of time each day to a more exhaustive study of the mental and physical condition of these children. This work will be greatly facilitated by a psychological clinic which has been established by the Medical College of Virginia.

The results from the work with the abnormal children in the city of Richmond seem to indicate that it is economical to have these children removed from the regular classes, to study them so that their mental ability can be known, and to instruct them to the extent that they can receive instruction along lines that will help them most. This policy is based on the principle that it is the inherited right of every child of school age to receive the kind and the amount of training he can profit by. To this end every modern school plant should provide means. Teachers should be trained to give the mental tests; accurate records of the progress of all children should be kept and provision should be made for the instruction of such children in classes of not more than fifteen. The children of low mentality who are passing through the hands of the teacher of today will become the weak-minded, helpless, and dangerous adults of tomorrow. What are the teachers and the administrators doing to prepare themselves to handle this problem? Surely it is a duty which they cannot evade if they are to be educators in a broad and modern interpretation of that word.

But after the public schools have located these children and placed them in ungraded classes and trained them as best they can, their work is left incomplete because the children soon reach an age when the schools can not hold them any longer and there is no other authority to take charge of them. Consequently they go out into society to be preyed upon by and become a prey to society. It is at this point that the State should assume control. A central governing body, acting under special legislation, should take up the work where the schools leave off.

In the light of these facts, then, some such policy as the following seems advisable:

1. It is the duty of the public schools to study the problem presented by the child of low mentality so that the number of feebleminded children in the community can be known.

2. It is the duty of the public schools to provide that kind of instruction for these children which will make them self-supportng citizens if they can profit by it, and so long as the home gives its share of proper supervision.

3. It is the duty of the public schools to provide instruction for feebleminded children of school age in classes of not more than 15 children to a class.

4. It is the duty of the State to take charge of these children who are institutional cases after the public schools have exhausted their means of helping them.

By pursuing such a policy, many wards of the State would be trained to become self-supporting in a community where they are not brought in competition with the normal individual. Many of these people are passing through the hands of teachers today without their actual mental ability ever being known. The menace of the feebleminded reproducing themselves would be cut off at its source.

REVIEWS AND CRITICISM

The Use of Money. By E. A. Kirkpatrick. (Childhood and Youth Series. Indianapolis: The Bobbs-Merrill Co., 1915. Pp. x+226.

Professor Kirkpatrick's book, he tells us, "is the outcome of experience, observation, and investigation as a parent, citizen, and an educator. . . . Part I being intended especially for parents and Part II for teachers."

Part I, Home Training, includes chapters on (I) Importance of financial training, (II) Development of ideas of money, (III) The usual financial training of children, (IV) Financial joys and sorrows, (V) Spending money, (VI) Getting money by irregular gifts, (VII) Regular allowances, (VIII) Earning money, (IX) Business dealings of children, (X) Saving money, (XI) Financial responsibilities of children, (XII) Buying clothes, (XIII) Keeping accounts, (XIV) Financial communism in the home. Part II, Training outside the Home, includes (XV) Institutions for children's savings, (XVI) School arithmetic and financial training, (XVII) Arithmetic with a motive, (XVIII) Incidental and intentional financial training in school affairs, (XIX) Home and community life in financial training, and lastly (XX) How Uncle Sam is giving his boys and girls financial training.

There is a brief bibliography, and an appendix which calls for particular mention. It is a chapter from that most delightful of books, "My Little Boy," by Carl Ewald, translated from the Danish by A. T. de Mattos. Surely no one else has ever had so keen and humorous an insight into the perceptions and imagination of a child, or so gentle a skill in turning them to account for the child's development.

As Professor Kirkpatrick observes, "The need for financial training is increasing. Money has a steadily growing importance in life as civilization progresses. Money may quickly procure the necessities—food, fuel, and clothing. It may give us any kind of scenery or climate we prefer. It can surround us with works of art and literature and give us leisure to enjoy them. It can procure for us any sort of amusement we may desire, and, above all, it can to a considerable extent determine our companions." But does he mean to imply that the determination of one's companions by money is an unmixed blessing?

To all teachers and parents who would gladly train their children in the discreet use of money, but who do not possess the rare sympathy and ingenuity of Carl Ewald, Professor Kirkpatrick's admirable book can be recommended as lucid and suggestive.

A. T.

Sleep and Sleeplessness. By H. Addington Bruce. Boston: Little, Brown and Co., 1915. Pp. ix+219.

"Exhaustive and painstaking," says Mr. Bruce, "have been the researches of modern psychologists with regard to the general problem of the state of the mind in sleep." This being so, we might expect him to present to us the fruit of some of these researches. His complete failure to do anything of the sort makes his book insignificant. Among the many writers whom he quotes, only three or four have any standing as psychologists, and of these all but one, William James, have become known rather by their popularity among lay readers than as contributors to the advancement of science.

One of the results of psychological investigation Mr. Bruce believes is "the gaining of unexpected insight into the true significance of dreams." He devotes two long chapters to the interpretation of dreams, touching lightly upon the Freudian hypothesis. Of Freud he says that while he "has allowed the passion for generalization to carry him to a rash extreme, I am nevertheless convinced that he has furnished the necessary clue to the solution of the problem . . . of the strange influence exercised over dreams by trivial incidents of the waking state." Having made this concession Mr. Bruce proceeds to unfold a theory of dreams which betrays that he for one has passed unscathed through the fierce rays wherewith Freud would illumine our less conscious moments. His own theory he states thus: "The subconscious, after all, is closely linked to the conscious. Whatever chiefly concerns a man's conscious thought will be the chief concern of his subconscious thinking, awake or asleep." Could anything be more remote from Freud?

Mr. Bruce draws generously upon the Proceedings of the Society for Psychical Research and like sources, commenting, "It may be that such dreams are evidential of an as yet unrecognized natural power of the human mind."

Discussing the causes of sleeplessness he cites from a medical work a sensible if not highly original suggestion which applies to all who are sleepless from overstimulation of some kind, usually coffee,—"If they cannot do without coffee, they must continue to do without sleep." Under the treatment of sleeplessness Mr. Bruce favors hypnotic suggestion, and speaks with approval of prayer as a therapeutic agent. He concludes, "The proper treatment for ninety to ninety-five per cent of insomnia is by psychological means alone, or psychological means plus hygienic and dietetic modifications of the daily life." In his preface he says, "Evidence is now available indicating that almost all insomnia is curable, and curable without recourse to drugs."

It is not pleasant to think of a sufferer with gout or exophthalmic goitre trying to secure sleep by the exercise of will power alone, or through hypnotism, while he neglects the medication which might cure his disease. On the other hand, there must be very many sleepless persons who lack sufficient occupation and are overmuch concerned about their health, and to these the polite optimism of Mr. Bruce's volume may prove serviceable in promoting cheerfulness, if not in directly inducing sleep.

A. T.

NEWS AND COMMENT.

Trachoma a Menace to America.

The National Committee for the Prevention of Blindness has published a forty-page pamphlet on trachoma, by Gordon B. Berry, which should be given wide circulation among school teachers and the general public. "It comes as a shock," observes Mr. Berry, "to learn that in the state of Kentucky it is estimated after a careful survey by the U. S. Health Service, that there are 33,000 cases of trachoma, and again, that of the 323,000 Indians in our country fully 20 per cent, or nearly 65,000 are infected. In the state of Ohio only two years ago, among the employees of one of the largest industrial concerns, we read of an outbreak which became so serious that it was necessary to call in the aid of the government before the spread of the infection could be checked and the disease eradicated among those already attacked."

Trachoma is defined by Surgeon John McMullen of the U. S. Public Health Service as "an inflammation of the conjunctiva, which originates in infection from a trachomatous to a non-trachomatous eye." The germ organism responsible for trachoma has not yet been found, and the diagnosis must be based upon the clinical picture.

There are figures to show that impaired vision results from trachoma in 50 per cent of the cases treated in hospitals, and blindness in 5 per cent. Of the cases which do not receive hospital treatment, blindness or greatly impaired vision is the almost inevitable result. "It is to be considered as one of the diseases most disastrous in its economic effect upon a people, decreasing not only the material efficiency of those whom it attacks, but also that of the race or people among whom it is prevalent. In addition to the well-nigh constant bodily discomfort of the individual sufferer, the resulting visual impairment cannot fail to reduce greatly his value to society."

The Public Health Service has in the past few years opened three hospitals in Kentucky, one in Virginia, and one in West Virginia. "A great many of the public schools in Kentucky have been examined for knowledge as to the prevalence of trachoma among the children. In nearly every community where these examinations have been held the trachomatous children have been withdrawn from the schools by order of the Board of Health, and must remain out until treatment has been afforded, and a certificate granted by the attending physician permitting their return."

By statute or regulation trachoma is a reportable disease in fifteen states. It "provides one of the strongest reasons for the periodic examination of the eyes of all school children. Laws providing for medical inspection annually have already been passed in seventeen states. . . . It is highly important that communities where the disease has not as yet obtained a foothold, where to exist it must be imported, should protect themselves from its ravages by proper legislation and medical inspection."

The Psychological Clinic

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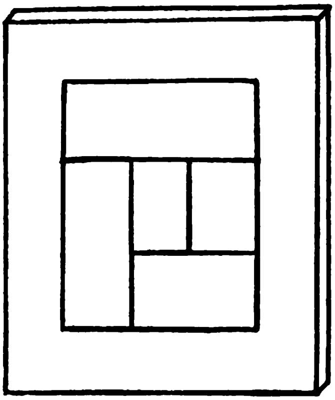
A STUDY OF THE FERNALD FORM-BOARD.

BY LEO BRUCKNER AND IRVING KING,
State University of Iowa.

Among current mental tests various so-called form-boards hold a creditable place. Like all other tests, in order that they may be used with any degree of accuracy, norms of accomplishment need to be determined by using them extensively under standard conditions with various ages and mental types. This has been done by Dr. Sylvester* with one of these form-boards, the Twitmyer adaptation of the Goddard form-board. It is the object of this study to arrive at a similar standardization of the Fernald form-board with reference to two age groups. The United States Bureau of Immigration uses this test as one means of establishing the mentality of an individual, and regards the satisfactory completion of the test in four minutes as a mark of the mentality of a nine-year-old.



THE FERNALD FORM-BOARD

With this tentative valuation in mind, two groups of children were selected from among the pupils attending the public schools of Iowa City; namely the eight-year-old and part of the ten-year-old groups. They were graded in school as follows:—

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* SYLVESTER, R. H. The Form-Board Test. Psychol. Review Monograph Supplement, Whole No. 65, Sept., 1913.

TABLE I

	Grade					Total
	1	2	3	4	5	
8 year olds..........	5	27	47	9	2	90
10 year olds..........	2	6	9	39	3	59

Each pupil was tested in the presence of the experimenter alone. Every effort was made to keep the child from becoming confused or disturbed by outside influences. When he first came to the experimenter, he found the blocks under the inverted form-board, on the top of a small table in a well lighted place. The child was told to place the blocks into the form-board as quickly as possible. The time used was accurately recorded. As soon as he had completed the first trial, the blocks were at once removed from the form-board, and the form of solution was recorded. It was possible to put the blocks into the form-board in eight different ways. Each of these methods was designated by a number and is called a form of solution. After the first successful trial, the same procedure was repeated. This was continued until it was apparent that the child had mastered the problem. No more than five trials were given any individual, and all were given at one period. The child remained standing during the whole experiment. A record of the age and grade of each subject was kept. A particular number was assigned, as stated above, to each of the eight possible solutions and the record of the forms of solution used was thus easily kept.

Table II shows the distribution of the solutions for eight-year-olds according to grade, and the time used for each trial.

Table II reads:—In grade 1, one pupil completed the first trial in from 16 to 30 seconds; two in grade 2 in from 16 to 30 seconds, etc. The remainder of the table gives the distribution for the successive trials. At the foot of each distribution table is the median for the time required for the solution in each grade and for the combined group.

The medians for the first trial show no correlation between ability to solve the form-board quickly and school progress. However, the medians for the other trials do show a correlation, that is to say, after the first trial, there is a definite correlation between school progress and ability to solve this form-board quickly.

There is a marked falling off in the median time required by the entire group of eight-year-olds for the second solution. The median of the whole group for the first trial was 2:20 minutes, while for the second it was only 22 seconds. Apparently the pupils solved

TABLE II.—EIGHT-YEAR-OLDS

First Trial

Time in Seconds and Minutes	Grade (School)					
	1	2	3	4	5	Total
1–15	..	..	..	1	..	1
16–30	1	2	5	1	..	9
31–45	..	1	3	..	..	4
46–60	..	1	2	..	..	3
1:01–1:15	..	1	..	1	1	3
1:16–1:30	1	1	4	..	..	6
1:31–1:45	..	2	3	1	1	7
1:46–2:00	1	2	2	1	..	6
2:01–2:30	..	4	3	2	..	9
2:30–3:00	..	3	6	..	..	9
3:01–3:30	..	3	7	..	..	10
3:31–4:00	..	2	3	..	..	5
4–6	1	3	7	2	..	13
6–8	1	1	2	..	..	4
8–10	..	1	..	..	..	1
Totals	5	27	47	9	2	90
Median time	1:53	2:30	2:40	1:53	?	2:20
Lower quartile	....	....	....	....	?	3:40
Second Trial						
1–10	..	6	16	1	1	24
11–20	..	8	16	4	1	29
21–30	1	2	4	1	..	8
31–40	..	..	1	1	..	2
41–50	2	2	1	..	..	5
51–60	..	1	1	1	..	3
1:01–1:30	2	4	3	1	..	10
1:31–2:00	..	1	1	..	..	2
2:01–2:30	..	..	..	..	..	..
2:31–3:00	..	2	..	..	..	2
3:01–4:00	..	1	3	..	..	4
4:00–5:00	..	..	1	..	..	1
Totals	5	27	47	9	2	90
Median time	:50	:20	:15	:17	?	:22
Third Trial						
1–10	2	12	31	5	1	51
11–20	2	10	10	2	1	25
21–30	..	1	3	..	..	4
31–45	..	..	1	..	..	1
46–60	1	2	..	1	..	4
1:01–1:30	..	..	..	..	..	..
1:30–2:00	..	1	1	1	..	3
2:00–2:30	..	1	..	..	..	1
2:30–3:00	..	..	1	..	..	1
Totals	5	27	47	9	2	90
Median time	:13	:12	:08	:08	?	:09
Fourth Trial						
1–10	1	4	9	4	..	18
11–22	3	3	2	2	..	10
21–40	1	5	1	..	..	7
41–60	..	..	1	..	..	1
1:01–2:00	..	..	..	..	..	..
2:01–3:00	..	1	..	..	..	1
3:01–4:00	..	..	..	..	..	..
Totals	5	13	13	6	..	37
Median time	:15	:20	:07	:07	..	:11
Fifth Trial						
1–10	..	3	4	..	..	7
11–20	..	2	..	2	..	4
21–40	..	..	..	1	..	1
41–60	..	..	..	..	..	..
1:01–2:00	..	..	1	..	..	1
Totals	..	5	5	3	..	13

TABLE III.—TEN-YEAR-OLDS

First Trial

Time in Seconds and Minutes	Grade (School)					
	2	3	4	5	6	Total
1–15	..	1	..	6	..	7
16–30	..	..	..	3	1	4
31–45	..	..	2	2	2	6
46–60	..	..	2	7	..	9
1:01–1:15	1	1	..	3	..	5
1:16–1:30	..	..	..	3	..	3
1:31–1:45	..	1	1	2	..	4
1:46–2:00	..	1	2	2	..	5
2:01–2:30	1	1	..	2	..	4
2:31–3:00	..	..	1	3	..	4
3:01–3:30	..	1	..	2	..	3
3:31–4:00	..	..	..	2	..	2
Over 4 minutes	..	..	1	2	..	3
Totals	2	6	9	39	3	59
Median time	?	1:30	1:30	1:05	?	1:09
Lower quartile	....	....	....	....	....	2:15
Second Trial						
0–10	..	1	1	14	1	17
11–20	..	..	6	15	1	22
21–30	1	2	2	7	..	12
31–40	..	3	..	..	1	4
41–50	..	..	..	1	..	1
51–60	..	..	..	1	..	1
1:01–1:30	1	..	..	..	..	1
1:31–2:00	..	..	..	1	..	1
Totals	2	6	9	39	3	59
Median time	?	:31	16:06	:14	:15	15:6
Third Trial						
0–10	1	3	6	30	3	43
11–20	1	3	1	7	..	12
21–30	..	..	1	2	..	3
31–40	..	..	..	..	..	..
41–50	..	..	..	..	..	..
51–60	..	..	..	..	..	..
1:01–1:30	..	..	..	..	..	..
1:31–2:00	..	..	..	..	..	..
2:01–2:30	..	..	1	..	..	1
Totals	2	6	9	39	3	59
Median time	?	:11	:08	:06	:06	:07
Fourth Trial						
0–10	1	2	2	5	..	10
11–20	..	1	..	2	..	3
Totals	1	3	2	7	..	13*
Median time	?	?	?	?	..	:07

* Too few cases to justify conclusions.

the combination on the first trial largely by the trial and error method and were aided by their memory of the first solution in the successive trials. To the experimenter it was plain that in many cases there was a conscious effort made by the pupils to recall the form used in the preceding successful solution, with the result that often the identical steps used in that trial were repeated. Sometimes in the succeeding trials the trial and error method continued to be used, as can be seen from table II, in the amount of time required for solution. Table III shows the same distribution by grade and time used in the case of the ten-year-old group.

Table III is to be read in the same way as table II. There is in this group a direct correlation between school progress and success in completing the test quickly, although due weight must be given to the small numbers in the various grades. The median time for the combined group in the first trial was 1:09 minutes, while that of the eight-year-old group was 2:20 minutes.

Below are the medians for the successive trials by both groups.

TABLE IV

Trial	1	2	3	4	5
Eight-year-olds..............	2:20	:22	:09	:11	?
Ten-year-olds...............	1:09	:15	:07	:07	?

The median time for each trial is less for the ten-year-old group than for the eight-year-olds; however, in the third trial they are approximately equal. The lower quartile for the ten-year-olds in the first trial is 2:15 minutes. Therefore it may be said that three-fourths of the ten-year-old group completed the first successful trial more quickly than one-half the eight-year-olds. Stated in another way, one-half of the eight-year-olds completed the test more quickly than one-quarter of the ten-year-olds. This wide overlapping raises the question, to which age is the test best suited? It can evidently be used for both, with a different time limit for each age. The lower quartile of the eight-year-old group is 3:40 minutes. Assuming that this should give the basis for a standard of the time to be allowed on the first trial, 3:40 minutes would be the standard for eight-year-olds and 2:15 minutes for ten-year-olds. In view of this conclusion it may be said that the time allowed by the Bureau of Immigration is very fair to the immigrant, and would hardly be considered a highly selective device.

An analysis of the forms used and of the changes made in solving the problem in successive trials was also undertaken. The purpose of this was to discover the predominance, if any, of a particular form and in a rough way to determine the part memory played in the successive solutions.

Table V gives the analysis of the form used by the eight-year-olds.

TABLE V—EIGHT-YEAR-OLD GROUP
Analysis of Form used

Form	1	2	3	4	5	6	7	8	Total
First one used	12	16	12	8	17	5	9	11	90
No change made	6	11	6	7	11	5	4	9	59
One change	4	..	3	..	4	..	1	2	14
Two changes	2	4	2	1	1	..	..	..	10
Three changes	..	1	..	..	1	..	4	..	6
Four changes	..	..	1	..	..	..	..	..	1

This table is read as follows: The first line gives the form used on the first trial. It reads: 12 pupils used form 1 on the first trial; 16 used form 2, etc. Although there are two modal forms, namely 2 and 5, it would appear that, with a larger number of cases, there would not be a predominance of any particular form.

The next line in table V gives the number of changes in the successive trials. Of the ninety cases, fifty-nine made no change in the form used, but used the form of the first successful solution on all succeeding trials. A change was recorded when a new form was used; for example, if form 1 was used in the first trial and form 2 in the rest of the trials, one change was recorded; if form 1 was used in trial 1, form 2 in the second, and form 1 in the remaining, two changes were counted.

TABLE VI—TEN-YEAR-OLD GROUP
Analysis of Form used

Form	1	2	3	4	5	6	7	8	Total
First form used	7	6	3	14	6	5	9	9	..
Changes made in successive trials:									
No change	5	5	2	8	1	3	4	8	36
One change	2	1	1	4	1	2	5	1	17
Two changes	..	..	..	1	3	..	..	..	4
Three changes	..	..	..	1	1	..	..	..	2

Table VI gives the same analysis for the ten-year-old group. Again it would appear that if a great number of cases were studied there would be no predominant form. As was the case with the eight-year-old group a large number made no change in the form used. Sixty-four (64) per cent of the eight-year-olds and 61 per cent of the ten-year-olds made no change. It is apparent that memory enters clearly into the solution of the successive trials, and that it is as much a factor in the ability of the younger group as in that of the older. This is significant, as the pupils were not told at the time of the experiment that they were to have more than one trial. The recall was therefore spontaneous, as there was no opportunity given for memorizing the form used on the first successful trial.

The greatest difficulty in completing the test and the greatest number of changes were found with very nervous children, and with those who were afflicted with some ailment, such as adenoids, near-sightedness, etc. These cases stood out so strongly that they could at once be detected by the experimenter. Apathy could be easily detected, as the indifferent attitude of the apathetic child could be seen in the absent-minded way in which he handled the blocks. The greatest difficulty seemed to be found in the attempts to fit in the two smallest blocks, even after the other blocks had been placed in the proper position.

TABLE VII—EIGHT-YEAR-OLD GROUP
Occurrence of each Form

Form	1	2	3	4	5	6	7	8
Used once	6	5	7	4	4	3	5	6
Used twice	5	2	1	..	2	1	1	1
Used three times	8	9	8	9	13	5	5	9
Used four times	1	7	..	..	..	1	1	2
Used five times	..	..	..	..	..	..	1	..

This table is to be read: Of all the pupils, form 1 was used only once out of all the successful trials by 6 pupils; was used twice by a pupil in 5 cases; 3 times by a pupil in 8 cases, etc.

TABLE VIII—TEN-YEAR-OLD GROUP
Occurrence of each Form

Form	1	2	3	4	5	6	7	8
Occurred or used once	..	6	4	5	5	5	4	1
Used twice	4	1	1	2	..	2	2	5
Used three times	5	5	2	8	1	6	3	9
Used four times	1	1	..	..	..	..	..	1

This table is to be read: In all the cases, form 1 was used twice out of 3 or 4 trials by 4 pupils; used 3 times by 5 pupils, etc.

Tables VII and VIII show how often each form was used throughout the test. Table VII reads: 6 pupils used form 1 once; 5 used it twice; 8 used it three times, etc. Table VIII reads the same way. They are simply a further analysis of tables V and VI.

It is probable that no particular form would predominate if enough cases were studied. If one form stood out in a large number of cases studied, the matter might be worthy of further study and experimentation.

In order to discover the relation between the ability to solve the test quickly and ordinary school ability, records of the Courtis tests were examined. As speed is the factor which enters into the correlation, the total number of problems attempted by each pupil in the four processes tested by the Courtis tests was obtained,—the results for the test of May 1915 being used. It was possible to obtain the totals of only forty of the ten-year-olds, and as only nine of the eight-year-olds took the test their results were discarded.

The total number of problems attempted by these pupils ranges as follows:

TABLE IX

Attempts	Cases
Less than 15	2
15–20	5
21–25	6
26–30	11
31–35	5
36–40	6
41–45	2
46–50	2
51	1
	40

The median number of attempts was 28.7. These results were correlated with the ability to solve the board quickly, and a Pearson coefficient of .0025 was found. This coefficient shows that there was no correlation between these two factors. It shows that probably the Fernald form-board test is too easy a test for the ten-year-old children. But, as it has been seen that one-fourth of the eight-year-old group can solve the problem of the form-board more quickly than one-half the ten-year-olds, it is probable that this test has little significance and is of little value when used alone. The writer feels that it would be of little value to an inexperienced experimenter, but for a trained psychologist the method of attack of the pupil upon the solving of the form-board would reveal many things. The ability of the child to plan or to recall his previous attempts should certainly be an index to his mentality. An indifferent or nervous attitude on the part of the subject would put the trained observer on the look-out for any irregularities or peculiarities in the mental make-up of the person being tested. It would seem that this form-board would be valuable as one of a series of tests. It should not be used alone as a measure of mentality; but the inability to complete the test satisfactorily within the time allotted should place the tester on his guard.

NOTE.—After our study had been made and this report written our attention was called to a somewhat similar study published in *Eugenics and Social Welfare Bulletin No. V*, by the New York State Board of Charities. This report is mainly a study of reaction by mental age. Where chronological age averages are given they are strikingly like our own medians for 8 and 10 year olds.

AN ORGANIZED MENTAL SURVEY IN PHILADELPHIA SPECIAL CLASSES

By Norbert J. Melville, M.A.,

Psychological Laboratory, Philadelphia School of Pedagogy.

Early in 1915 the Philadelphia School of Pedagogy in co-operation with the Division of Medical Inspection and the Department of Instruction of the Public Schools organized a system of psychological testing of the pupils in the special classes. Although the public schools have had the advantage of the active co-operation of the Psychological Clinic of the University of Pennsylvania, it has been found impossible heretofore to arrange for a detailed clinical examination except for a comparatively small number of the 2700 pupils enrolled in the special classes, to say nothing of the 9000 pupils enrolled in the regular grades who are from three to six years over age for grade.

Consequently it seemed desirable that some system should be organized by which a certain number of standardized mental tests should be applied individually to as many of the pupils as could be reached during the year. In this way it would be possible within two or three years to have on record a tentative mental index of all the pupils in the special classes as well as of such backward and disciplinary pupils in the regular grades as could be reached. It was thought that such a tentative mental index, provided it was the result of standardized procedure, would serve as a first aid in psychological diagnosis, and would bring to light those cases that are most in need of thorough clinical examination. Moreover it was believed that these results, when carefully analyzed and interpreted, would be helpful along with the school and home records in determining provisional pedagogical treatment until a complete medical and psychological examination of the case could be made.

At the time some forty men were just completing a laboratory course in mental testing with special reference to the use of standardized series of tests. No student had been admitted to this course who had not completed in a satisfactory manner the fundamental courses in general and experimental psychology. Parallel with the course in mental testing, a course in child study was required. Each man was provided with the materials necessary for giving the Binet tests, some of the Knox tests, and certain tests of ability in reading and arithmetic. All such material was carefully inspected from time to time.

A circular letter was sent out by Dr. Oliver P. Cornman, Associate Superintendent having charge of the special classes, to all principals having such classes in their schools. The letter stated the purpose of the testing and requested those principals who wished to co-operate, to indicate whether or not rooms would be available for the work. With the exception of two or three schools where the conditions were not favorable, the principals expressed a willingness to have such tests conducted in their schools and gave assurance that accommodations would be provided so that the testing could go on without interruption. With the cooperation of Dr. Francis B. Brandt, Head of the School of Pedagogy, laboratory extension work was organized as part of the advanced work in educational psychology.[1] A roster was arranged by which the students could be present one afternoon a week in the schools to which they had been assigned for the testing.

In order to insure the greatest possible standardization of procedure the following measures were adopted. The recommendations of the informal conference on mental testing at Buffalo were carefully studied and interpreted. Regarding the many questions of Binet procedure not covered by these recommendations, an effort was made by the writer to discover in what details his own methods agreed or disagreed with those of other clinical examiners. These efforts resulted in a tentative standardization of the details of Binet procedure, which has been tried out during the past year in over one thousand cases. Pinter's standardization was followed in giving the Knox cube tests. To secure uniformity in the general procedure of mental testing, emphasis was laid on such matters as (1) setting the pupil at ease, (2) constant encouragement to effort, (3) application of definite rules in the matter of second chances, (4) completeness and carefulness in recording all responses for the purpose of later verification and study, (5) the reporting of any factors which might affect the results, (6) attention to the mechanics of testing, (7) consideration of such questions of school hygiene and administration as are related to the work of visiting examiners. In order to perfect the mechanics of testing and recording, special record blanks known as forms 43 and 44 of the Philadelphia Public Schools were prepared. These forms will be described in a later article on our proposed standardization.

Arrangements are being made to translate our proposed uniform method into several foreign languages so that foreign born pupils can be tested in their native tongue.

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[1] *See* Am. Psych. Assoc., Report on Academic Status of Psychology, Dec., 1915.

During the first part of the extension work the students retested such pupils in the School of Practice as had already been carefully examined. The practice-testing was done in the presence of the writer so that he could assist and render such immediate and later criticism as was necessary in training these student assistants. This practice work was supplemented by a series of carefully planned written examinations on questions of standard procedure. The student-examiners were then given a series of lectures on their relation to the administration of the schools to which they would be assigned. Such questions as their obligations to the supervising principal, their duties in times of fire drill, the detention of pupils after school in order to complete examinations, the desirability of minimizing the interruptions of school routine, and other similar topics were considered. The student-assistants were instructed never to attempt an evaluation of results except in laboratory conferences under the direction of the writer, who made the final interpretation of results.

The student-assistants reported to the principals who assigned them rooms where the individual examinations could be made under satisfactory conditions. The examiner was held responsible for the pupil from the time of leaving to time of returning to the class; and following the regulation of the Division of Medical Inspection, it was provided that the testing of a girl pupil should always be done in the presence of a witness.

The results of all tests were brought to the psychological laboratory and there carefully evaluated during the term. At the end of the term reports were sent to each school, to the Division of Medical Inspection, and the Department of Instruction. During the spring term of 1915 three hundred and forty-two pupils were examined in this way; during the fall term of 1915 five hundred and twenty more, making a total of eight hundred and sixty-two tested during the year. In addition to these eight hundred and sixty-two examinations over one hundred and fifty re-examinations were given. The following table and chart[1] show the results of the Binet tests for the first eight hundred and fifty pupils examined. The results obtained with the Knox tests will be reported in another article on the development of a supplementary scale of performance tests.

In order that the total Binet age might not obscure certain important facts concerning the pupils tested, they have been classified in growth periods[2] according to their ability to pass four out of

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[1] This chart was prepared for the Special Class section of the exhibit of the Committee on Feebleminded of the Public Charities Assn. of Pa.

[2] *cf.* ELLIS, F. W., Report of Mental Examinations at Neurological Inst., N. Y.: 5th and 6th Ann. Rept. of N. Y. Probation and Protective Assn., 1913, 1914.

850 SPECIAL CLASS PUPILS CLASSIFIED BY MENTAL LEVELS AND AGE DIFFERENCES ACCORDING TO THE BINET SCALE (FINAL REVISION).

Summary According to Mental Levels		Summary According to Age Differences			
	Total	Group A -4 or more	Group B -1 to -3.9	Group C less than ±1	Group D +1 or more
Level of Early Infancy........	20	18	2	..	..
Level of Later Infancy........	112	51	59	2	..
Level of Early Childhood......	563	160	337	63	3
Level of Later Childhood......	139	35	82	20	2
Level of Adolescence or higher.	16	1	10	5	..
Total Examined..........	850	265	490	90	5

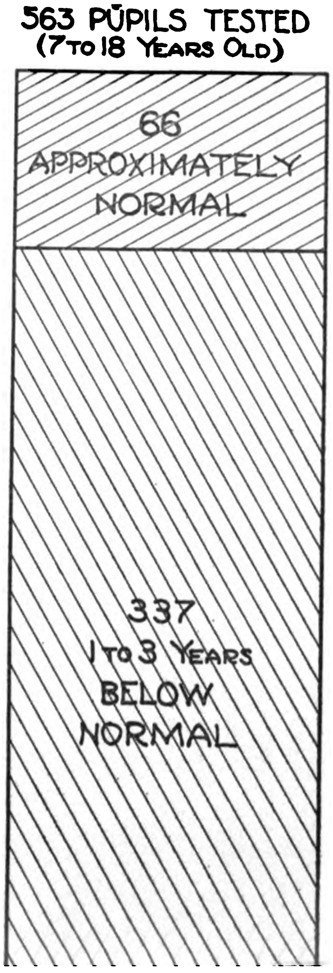
five of the tests for III, VI, IX, or XII years, as shown in the chart. The pupil who fails to pass the III year tests is classified at the level of early infancy in his intellectual development through not necessarily in his emotional or volitional development. A pupil who passes III but fails on the VI year tests is classified at the level of later infancy, etc. This method of classification (1) reveals the fact that certain highly diagnostic tests, *e. g.* the definition tests, have not been passed and (2) suggests one form of school grading.

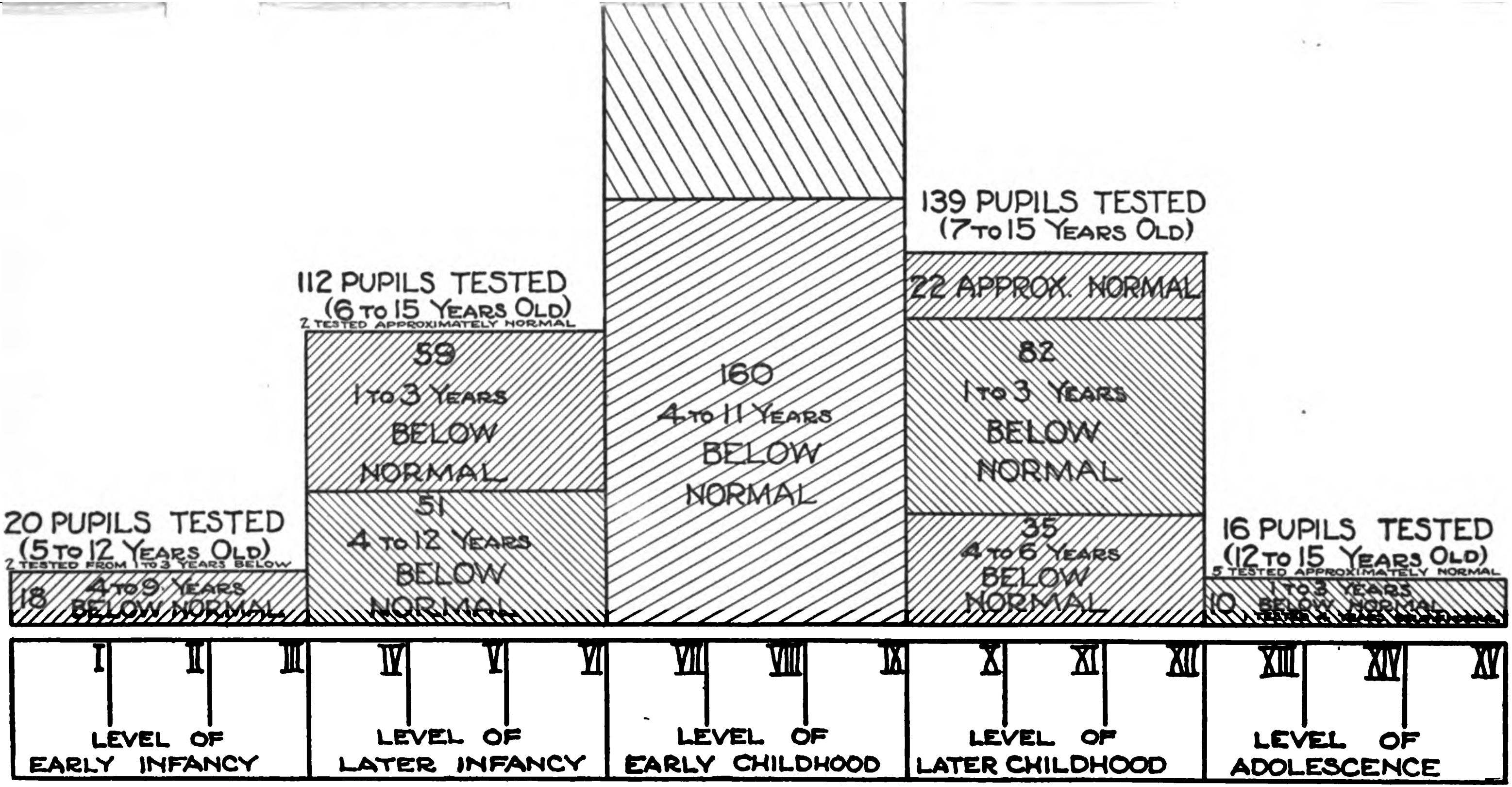
As shown in the table, twenty, or 2 per cent of the pupils appeared to be at the level of early infancy *i.e.* they failed to show the intelligence of normal three-year-old children. All of the twenty should be given a thorough clinical examination with a view to the proper disposal of these cases for whom it would seem impossible to make adequate provision in the public schools.

One hundred and twelve pupils, or 13 per cent appeared to be at the level of later infancy *i.e.* they failed to show the intelligence of a six-year-old child. Further examinations will probably show that comparatively few of these pupils can be adequately provided for in the public schools.

Five hundred and sixty-three, or 63 per cent of the pupils tested at the level of early childhood *i.e.* they showed the intelligence of six-year-old children but not of nine-year-old children. One hundred and sixty of these, four or more years below age, call for special detailed examination particularly if developing signs of lawlessness. The remaining four hundred and three pupils, approximately fifty per cent of the total number examined, together with the one hundred and nineteen pupils of higher levels who are at age or less than four years retarded, represent the type of pupil for whom the state cannot at the present time hope to make institutional provision.

Of the one hundred and thirty-nine pupils tested at the level


563 PŪPILS TESTED
(7 TO 18 YEARS OLD)
66
APPROXIMATELY
NORMAL
337
1 TO 3 YEARS
BELOW
NORMAL



ROMAN NUMERALS INDICATE YEARS OF MENTAL GROWTH ACCORDING TO THE BINET — SIMON SCALE

850 Special Class Pupils classified by mental levels and age differences according to the Binet Scale (Final Revision).

of later childhood, thirty-five tested four or more years below age. According to some investigators this group would probably contain the cases most likely to become defective-delinquents. Such would be the pupils having a physical development corresponding to adolescense but a mental development corresponding only to the level of later childhood *i. e.* pre-adolescence.

The sixteen pupils who tested at the level of adolescence like the five pupils to be mentioned later in group D were usually of the disciplinary or ill balanced type. Together with disciplinary cases belonging in groups B and C many of these would be best provided for in probationary classes or in a parental school.

As already mentioned the pupils are grouped within each level according to the difference between their Binet age and their chronological age. Four groups are made on this basis, namely, Group A—pupils four or more years below normal according to the Binet scale, Group B—pupils from one to three years below normal, Group C—pupils having an age difference of less than plus or minus one, Group D—pupils one or more years above normal according to the Binet scale.

Although Binet and other psychologists suggest that a mental retardation of three years is indicative of serious mental deficiency, the writer has considered it best to include in Group A *i. e.* those most likely to prove feebleminded upon further examination, only such pupils as test four or more years below age—a mental retardation corresponding to more than one growth period. As shown in the table two hundred and sixty-five pupils or 31 per cent are included in Group A, fifty-five of the pupils in this group tested from seven to twelve years below age. Such cases call for further examination with a view to institutional care and treatment.

Group B contains all the pupils having age differences ranging from minus one to minus three and nine-tenths inclusive. The majority of these four hundred and ninety pupils or 57 per cent are found to be at the early childhood level and seem to constitute the main problem of special classes in our public schools.

Groups C and D,[1] containing ninety-five, or twelve per cent of the pupils, represent the most promising cases for possible restoration to regular grades when given thorough clinical examination and adequate treatment.

All the cases of re-examination thus far studied merely confirm the previous testing with the exception of two cases. One of these pupils is troubled with a serious speech defect and has shown a gain of 1.6 years within six months. The other pupil passed the tests of memory span and association in the higher years when first tested but failed to do so when retested six months later, thus lowering his Binet age by two years. This second record was accompanied by a note stating that the pupil was in poor health. An immediate effort will be made to have both these pupils given detailed psychological and medical examination. An analysis of these changes in Binet age upon retesting revealed the fact, however, that in neither case were the changes of such a nature as to alter the classification of these pupils. The retesting confirmed their original classification in mental levels and their grouping by age-difference. A further study of retesting is in progress.

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[1] These "approximately normal" pupils are the younger children at each level who have thus far failed in the regular grades.

Upon request from a school, the writer has analyzed the results of a given examination in conference with the examiner and has submitted a report based on the detailed analysis. Later conferences with the school authorities have confirmed the value of such reports. In certain instances another series of tests has been applied in our supplementary studies. In our practice school, each of the special class pupils was tested one hour per week for five successive weeks. This testing included experiments in learning the regular school subjects.

It is important to emphasize here that the results of this survey are based upon the Binet-Simon scale as revised by its authors in 1911. Unlike the earlier revisions still generally used in this country, Binet's final revision corrects for the most part the errors in mental ages X to XII inclusive, pointed out by Brigham[1] and by Thorndike.[2] Their criticisms, though published in 1914, do not refer to Binet's final revision of 1911, recommended by the Buffalo conference, but to an earlier form of the scale.

CONCLUSIONS.

The Binet-Simon and other scales administered under careful supervision provide a standard method of:

1. Selecting cases for detailed clinical examination.
2. Detecting eligibility of pupils for special classes or for institutional care.
3. Grouping pupils within the special class.
4. Investigating the causes of delinquency.
5. Registering data concerning the feebleminded.

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[1] *J. of Ed. Psychol.*, Vol. V, pp. 439–448.

[2] THE PSYCHOLOGICAL CLINIC, 1914, Vol. VIII, pp. 185–189.

THE SOCIAL ASPECT OF AN EXPERIMENT WITH RETARDED CHILDREN.

By Lillian M. Tobin,
Special Teacher of Retarded Children, Talcott School, Chicago, Illinois.

In all schools are found children who do not "fit in" with the regular work. They are unresponsive; cannot work in groups; are irritable or over-sensitive; will not play, rather brood in corners; are hostile to society. Sometimes they show a tendency to damage things or torment animals or their companions.

They are individualistic. Every command must be given separately to them. They will not listen unless directly addressed; and will not respond. The result is that either their undirected energy takes the form of mischief and they become incorrigible, or they shrink back into themselves and become apathetic, sitting in their places with no interest, but conscious of the indifference of their companions.

If such children are allowed to remain indefinitely in the regular grades, it will mean years of unsatisfactory work and annoyance for the teachers; years of handicapping for the pupils of average ability, and years of stunting physically and mentally for the retarded children themselves.

The fact that these children have heretofore made up from 12 to 30 per cent of our criminal class is a sufficient argument that something should be done to make them less anti-social. It is unquestionable that the establishment of special forms of instruction for these children is "not only a humanitarian duty but a social necessity."

Eight years ago in one of the Chicago schools a special room was organized for such pupils, with the writer in charge. The room was equipped with chairs and tables of different sizes; manual training benches and tools; looms; a piano; materials for handwork of different kinds; large space for free plays and games. Moreover the children were allowed the use of gymnasium, baths, garden space, etc.

The curriculum was arranged with the following underlying principles in mind:

1. To make the children strong, healthy, happy.
2. To develop a wider range of social activities.
3. To train them to a better adjustment to environment.

In short, to make them better social beings; to render them if possible capable of contributing to their own support and managing their own affairs.

The program was arranged as follows: three-fifths of the time was given to handwork and physical work; two-fifths of the time to academic work. The handwork included basketry, weaving, woodwork, sewing, crocheting, drawing, clay modeling, book-binding. The physical work consisted of free plays and games, corrective work, baths, gardening. Music included singing and rhythmic exercises of all kinds.

The academic work comprised numbers introduced through plays and games; language, reading and writing.

The child's relationship to the school is always emphasized. He is made to feel that he is not an isolated individual but a member of the school, with the same privileges and also the same responsibilities as the other members.

These children attend the song festivals with the others; use the gymnasium in their turn; have their captains to direct the ranks; their own ball teams; their own garden.

In December and June we have a display of handwork made during the year and the other children come to see it. This helps to develop self-respect, and also the feeling that the child is a part of the school.

The sense of individual responsibility is secured by joint work. The entire class helped to make some picture frames for the school; one sawed the moulding, others filed, still others stained and polished, so that each one had a hand in the work and each one felt a personal responsibility in its success. Again, all the boys worked together to make a large doll's bed, and the girls made the mattress, bed clothes, and doll clothes.

In the garden they made fertilizer to improve the poor soil, planted bushes, sowed seeds and cut the grass. Each one had his bush which he planted, but all were responsible for making our garden look as well as the other gardens. When our garden was in good shape, we helped in the gardens of others who had not so much time.

Holiday functions and other occasional incidental parties help to promote the social spirit. These children, when development begins, are strongly imitative and highly suggestible and these qualities have been used in influencing them. The discipline has been effected by depriving the offender of participation in the games and holiday functions. It has proved sufficient.

The following are some of the striking cases of social gain:

(a) A boy in school in the first grade for two years. He never spoke a word; would not walk across the room without being pushed; when outside he stood up against the building and hung his head. At one time he was recommended for exclusion. In the special room he failed to respond in any way at first. One day after school, when he was sure all the others had gone, he answered *yes* and *no* by nodding his head. A few days afterward he answered almost inaudibly, *yes* and *no* to questions. The next step was to get him to do this in the presence of the other children, which he did after a few days more. Next he ran and caught a ball when his "number" was called; then threw the ball ancd called someone else's number, etc., etc. After six months in the special room, he talked to the other children, played with them, ran errands, rang the school bell, and did some good handwork. He learned to read a few sentences and to write his name, in fact took part in all the activities of the room.

Every month or so he would have lapses into his old habits and refuse to respond for perhaps a day or two, and then would react again. It is five months now since he has lapsed, and he is improving in every way.

(b) A boy was brought by his mother and sister to be examined. He was large for his age, had no ability in reading or writing, and no experience in handwork. He had broken into a school building and was to be brought before the Juvenile Court. The parents did not want the case taken before the judge and it was recommended that he be tried in some branch of the public schools that would be likely to catch his interest and train him.

He was fourteen years old and pretty large, and had to begin to read in the primer. For the first few days he felt rather awkward, but later in one of our ball games, when he got the ball into the basket forty-eight out of fifty times, and still later in a competition with the sixth grade when none of them could approximate his score, he not only began to develop a feeling of self confidence, but was the acknowledged leader in the room. His improvement was rapid. He was undoubtedly a model pupil. He remained in the room with us only a year and a half, and in that time he completed the first, second, and third grade work besides doing some good handwork. Repeated letters were received from the parents expressing their gratification at the change in the boy. He received a labor certificate and his uncle took him into his office in the Board of Trade. The last I heard of him he was making good.

This was a striking case of social gain considering the fact that the boy was fourteen years of age when he came to us, and remained with us only a year and a half.

(c) A boy was considered too low a case for the public schools. The parents were at a loss what to do with him. He tormented them and hurt his little sister if left alone with her. He seemed to possess a number of cruel traits. At one time he was in an institution for feebleminded children.

After some private tutoring he developed better coordination and was admitted to the special center. He has been with us six months. He runs and plays with the others, has learned to use his hands and make things; is interested, attentive, and can write a little. The parents say he has an entirely different attitude at home. From being destructive his habits are becoming constructive. The sister is no longer afraid of him. They play together and occasionally have been left alone together with good results. The improvement seems slight from the school standpoint, but the parents are overjoyed. They live two miles from the school and the mother has to bring the boy to school in the morning, and the father calls for him in the afternoon, yet they are anxious to do it and in constant fear of his exclusion.

The avenues of approach and development in the handling of these retarded children are numerous. In the present article only one phase of the problem,—namely, the social phase,—has been considered.

The writer has kept a record of the history of the children who have left her division during the years 1907 to 1914, and the tables herewith submitted may be of interest at this time.

I.

	Boys	Girls	Total	Per Cent of Total
Number admitted	74	36	110	
Left to go to Parochial School	14	2	16	14.5
Transferred to other public schools	14	6	20	18.1
Died	1	1	2	1.8
Left city	3	1	4	3.6
Number actually treated	42	26	68	61.9

II.

	Boys	Girls	Total	Per Cent of Total
Number actually treated	42	26	68	
Excluded, for low mentality	11	7	18	26.5
Returned to grades and remained in school	7	6	13	19.1
Returned to grades and left soon after:				
(*a*) Working:				
delivery boy	2	0	2	
on truck	2	0	2	
can factory	0	1	1	
peddler	1	0	1	
piano factory	0	1	1	
candy factory	0	1	1	
(*b*) Staying at home	2	4	6	
(*c*) Transferred to other schools	2	0	2	
(*d*) Left city	1	0	1	
(*e*) No information	6	0	6	
Total	16	7	23	33.9
Returned to grade and failed to make good	3	0	3	4.4
Left special room for various reasons:				
(*a*) Staying at home	2	2	4	
(*b*) Working:				
office boy	1	0	1	
nurse girl	0	3	3	
(*c*) Working occasionally	2	0	2	
(*d*) Worked a while, then married	0	1	1	
Total	5	6	11	16.1

REVIEWS AND CRITICISM.

The Intellectual Status of Children who are Public Charges. By J. L. Stenquist, E. L. Thorndike, and M. R. Trabue. Archives of Psychology No. 33, September, 1915. New York: The Science Press.

This monograph belongs to the none too large class of scientific books which succeed in being thoroughly dry and compact, but not at all dull. "Two hundred and sixty-five children, including one hundred and eighty-three boys and eighty-two girls, were measured. They comprised about three-fourths of the children from 9 years 0 months to 16 years 0 months who were, at the time of the investigation, public charges in a certain county. The selection was random, except that none of the dependent children sent from the county to the state institution for the care of the feebleminded were included. . . . A comparison of the measurements of the children committed for delinquency with those committed for destitution shows no demonstrable difference either in the tests of abstract intellect or in the mechanical test."

The Stenquist test of mechanical ability, which is the first reported in this monograph, aims to get as far as possible "from the child's ability to read and to write and to deal with heard words. The general plan is to measure his ability to select the necessary parts and put them together properly to make certain things." The materials were contained in a shallow box with a partition across the middle. In the farther half of the box, as placed before the child, were seven mechanical models correctly put together and set up. In the nearer half were the pieces for constructing a similar set of models. Photographs show the perfect models, the intermediate grades of accomplishment, and how they are to be scored. Thirty minutes was the time allowed, and one extra credit was given for each minute saved by the child.

Mr. Stenquist obtained median scores for each year from six to sixteen, by testing 432 children in two New York City public schools. From these data he computed the "probable true central tendencies for these ages." From the corrected medians the standard scores for each year and fraction of a year were obtained, but he remarks, "The scores to fit ages below 6.5 and above 15.5 are frankly only estimates." The "construction age" of any child can be computed by finding the age in the table which corresponds in score with the score made by the child. "Where the same score appears for several ages, the midpoint was taken."

The second test given to the dependent children was the Trabue completion test, a series of fifty-six sentences with omitted words to be filled in. The directions were very clear, and in substance told the child to "put one word in each blank, so that the sentence will sound right and make good sense." It was observed that "if the child had not understood from the class explanation it was almost impossible to make him understand by individual help. The examiner always went about the room, however, to do what he could for such cases. . . . Thirty-five minutes from the time the children began work, all papers were collected. . . . Each child's paper was given a score for each of the fifty-six sentences, each sentence receiving a grade of 5 if perfectly completed, and 0 if not sensible at all. . . . If the sentence as completed by the child was only slightly imperfect, a grade of 4 was given it," and so on. "In an effort to make the grading consistent an objective scale of value was made out for each of the fifty-six sentences." Here Mr. Trabue adds a word of caution,—"One has to guard against depending too much on his mechanical device and failing to exercise his judgment at all. . . . After the sentences were graded, they were grouped for purposes of calculation into eight groups of seven sentences each. . . . Each group was treated as an independent unit in the record."

The standards of performance were obtained from tests given to 850 children in two public schools in New York, and graded as already described. The results indicated that "there is some relation between the ability which this test measures and the judgment of the school authorities who promote children from grade to grade." The median child is defined as "that child whose ability is central,—who has just as many above him in ability as he has below him. . . . In order to reduce the chance of errors . . . it seemed best to use the median of the scores made by those children who had made normal progress in school." Mr. Trabue presents a table of "median scores in each section of the completion test for each year-age group of ordinary children," and gives in another table the "ages corresponding to each degree of achievement in each section of the completion test." He illustrates the use of these tables to compute for any individual child his "median inferred mental age by completion test as a whole."

The Goddard revision of the Binet-Simon tests was the third series of tests used, and the procedure is described in full detail. "The standards of performance to be counted as satisfactory and the credit to be given for each test, as well as the form in which the test was presented, were those described by Dr. Goddard, except where study of the methods used by others and the examiner's own experience convinced him that modifications were desirable."

After filling in the preliminary data on the record sheet, the examiner began with the test of memory span for digits. "This test was chosen to be given first because it gives the quickest indication of the child's level of ability, it is easily understood by the child, it begins at a point where any of our children could do it.successfully, and it gets the child into an attitude of attention which is very valuable." Next the memory test for sentences was given. Mr. Trabue, who did nearly all of the Binet testing with these dependent children, remarks, "The results from these two series of memory tests gave a good indication of where to begin with the other tests. . . . We grouped the tests according to their methods of application. . . . Each group was given separately, beginning at a point where . . . the memory test had given promise that he would be successful, and going from the easy to the more difficult until the child showed clearly that he was unable to do any that were more difficult. No child was given all the tests of any group, but each was given all those in any group between the point where he showed full ability to do anything easier and the point where he showed complete inability to go higher."

Dr. Thorndike had previously found that "the mental ages as calculated by the Binet-Goddard scheme are, after 8.6 years, too low for ordinary American children." The corrected Binet ages were presented by him in *The Psychological Clinic*, Vol. VIII, No. 7, and are given again in this monograph.

The fourth and final test was of ability to read certain passages and answer questions or perform acts based on them. The passages and questions were selected from those published in the *Teachers College Record* for September, 1914. This test is considered by the authors of the present monograph to be "in some measure a means of discriminating between constitutional dulness and lack of training. . . . The matter is not sure, for it is not absolutely certain that the abilities required by the Binet test are less dependent on home and school training than those required for intelligent reading." The method of giving and scoring the reading test is explained. "The standards defining the achievement of ordinary children in these reading tests were obtained from about 700 children tested in a public school on the upper east side of New York City." A table shows the frequency of the scores attained by these ordinary children, and another table rearranges these facts for convenient use in determining the "reading ages" from the gross scores.

In combining the results of all four tests and computing the retardation (or acceleration), the experimenter took the chronological age as "determined by the child's statement, corroborated or modified by the records of the institution or county wherever possible. . . . There is reason to believe that the semi-official age is often simply a record of age based on a previous statement by the child. There is also reason to believe that the semi-official record is often in gross error (as when a large boy in a high grade who says he is fourteen is recorded as only seven). Consequently when we put the mental status of each child in terms of 'underageness' we use as his chronological age the average of his own statement and the report of the institution or county records, or, if the two differ by three years or more, choose the one which best fits his bodily appearance and score in the tests. . . ."

They found, as might be expected, that "these dependent children as a group are much below ordinary children of corresponding ages in the sort of abilities tested by the Binet, completion, and reading tests. They differ of course among themselves. We find one child of much promise, forty-nine of nearly average ability or better, while forty-eight are four years or more behind and the remaining three-fifths are from half a year to four years behind. . . . In the mechanical test also the dependent children are notably inferior, though not so much so as in the more abstract abilities. . . . The increase in underageness as we go from lower to higher ages in the dependent children is greater than would be expected from the increasing range of individual differences in general." After enumerating several causes for this selection, the authors conclude, "From the point of view of social economy this excess-dulness of the older children means that being a public charge is more and more symptomatic of dulness, the older the child is. Probably the adults up to beyond the prime of life who are public charges would be found to be even duller than these children of fourteen to sixteen."

In a supplementary chapter on "Heredity versus environment as the cause of the low intellectual status of dependent children," the authors report measurements of nine pairs of siblings who have been in institutions for five years or more, and compare with them the measurements of nine other pairs of siblings who have been in institutions from one to three years. "It appears that, as far as our data go, equalizing opportunity, as by institutional life, for five years or more for children three to nine years at entrance upon it, does not reduce original likenesses within families and differences between families to any notable extent. This conclusion," they add, "should be tested with a larger group of children and also by repeated measurements of the same pairs of siblings. In connection with the experimental results when groups of individuals are given equal amounts of practise, however, and the facts for twins, the facts given here put the burden of proof upon those who attribute any great share in the resemblances found in siblings, under the same general conditions of life during the same decade in the same community, to their similarity in home training."

A. T.

NEWS AND COMMENT.

The Factor of Poverty in Sanitation.

The factor of poverty in sanitary problems was discussed in Washington, in November, 1915, by Surgeon General William C. Gorgas, whose success in cleaning up Havana and the Panama canal zone have brought him recognition as America's leading sanitarian. His audience was the Clinical Society of Surgeons, assembled in their twenty-fourth annual meeting. Dr. Gorgas said, in part:

"Such sanitary work as is necessary in the tropics is inexpensive, but measures directed against special disease are not the greatest good that can be accomplished by sanitation. Before these great results that we can all now see are possible for the sanitarian, we shall have to alleviate more or less the poverty at present existing in all civilized communities. Poverty is the greatest of all breeders of disease and the stone-wall against which every sanitarian must finally impinge.

"During the last ten years of my sanitary work I have thought much on this subject. Of what practical measure could the modern sanitarian avail himself to alleviate the poverty of that class of our population which most needs sanitation? It is evident that this poverty is principally due to low wages; that low wages in modern communities are principally due to the fact that there are many more men competing for work than there are jobs to divide among these men. To alleviate this poverty two methods are possible, either a measure directed toward decreasing the number of men competing for jobs, or, on the other hand measures directed toward increasing the number of jobs.

"The modern sanitarian can very easily decrease the number of men competing for jobs; if by next summer he should introduce infected stegomyia mosquitos at a dozen different places in the southern United States he could practically guarantee that when winter came we would have several million less persons competing for jobs in the United States than we have at present. This has been the method that man has been subject to for the last six or seven thousand years, but it does not appeal to me, nor, I believe, to yourselves. This method is at present being tried on a huge scale by means of the great war in

Europe. But I am sure that every sanitarian would much rather adopt measures looking toward the increase of jobs rather than, as we have done in the past, submit to measures that decrease the number of competitors for jobs.

"I recently heard one of the members of the Cabinet state that in the United States 55 per cent of the arable land, for one reason or another, is being held out of use. Now suppose in the United States we could put into effect some measure that would force this 55 per cent of our arable land into use. The effect at once would be to double the number of jobs. If the jobs were doubled in number wages would be doubly increased. The only way I can think of forcing this unused land into use is a tax on land values. I therefore urge for your consideration, as the most important sanitary measure that can be at present devised, a tax on land values."

The Relations of Instruction in Religion to Public Education.

This will be the topic for the first three days of the meeting in thirteenth annual convention of the Religious Education Association in Chicago, February 28, 29, March 1 and 2, 1916. The last day will be devoted to departmental conferences on religious training in colleges, churches and other institutions.

At this convention no time will be spent in popular mass meetings, but the whole period will be devoted to carefully planned conferences. The discussions will be based upon a series of investigations into the various experiments in correlated instruction, especially in the Gary plan, the Colorado and North Dakota plans and the different systems of parochial schools and of week-day religious instruction.

The association has no special plan to advocate; the conference will afford opportunity to study the present situation and the various solutions proposed. Some of the topics of discussion are:

> The Attitude of the Religious Communions concerning the relations of Church and State in Education.
>
> Upon what conditions can Churches of different denominations combine in giving Week-day Instruction?
>
> What are the reasons for asking the State to give school credits for Religious Instruction?
>
> To what extent are the Churches competent to undertake the Educational Task Involved?
>
> Why some Citizens believe that the plan endangers our Religious Liberties.
>
> What influence will the Week-day Instruction plan have on parochial schools?

Two sessions will be devoted to a study of Moral Conditions in High Schools.

All persons interested in week-day religious instruction are invited to the conference. The sessions will be held in the Congress Hotel. Programs may be obtained by writing to the Religious Education Association, 332 So. Michigan Ave., Chicago, Ill.

Vocational Training for Indians.

The Committee on course of study for the United States Indian Schools recently convened by the Commissioner of Indian Affairs, Cato Sells, after several weeks' work in conference at Washington has completed a course of study which will give to the Indians the best vocational training offered by any school system in the United States.

As these schools must train Indian youth of both sexes to assume the duties and responsibilities of self-support and citizenship, this course strongly emphasizes vocational training.

It is classified into three divisions. The first is the beginning stage, the second the finding stage, and the third the finishing stage. During the first and second periods the training in domestic and industrial activities centers around the conditions essential to the improvement and proper maintenance of the home and farm. The course outlined in the prevocational division is unique in the fact that in addition to the regular academic subjects boys are required to take practical courses in farming, gardening, dairying, farm carpentry, farm blacksmithing, farm engineering, farm masonry, farm painting and shoe and harness repairing, and all girls are required to take courses in home cooking, sewing, laundering, nursing, poultry raising and kitchen gardening.

This course not only prepares Indian youth for industrial efficiency but at the same time helps them to find the activities for which they are best adapted and to which they should apply themselves definitely during the vocational period, the character and amount of academic work being determined by its relative value and importance as a means of solving the problems of the farmer, mechanic, and housewife.

Non-essentials are eliminated. One-half of each day is given to industrial training and the other half to academic studies. All effort is directed toward training Indian boys and girls for efficient and useful lives under the conditions which they must meet after leaving school. Other objects to which this course directs special attention are health, motherhood and child-welfare, civics, community meetings, and extension work.

Making the Dictionary a Popular Book.

To popularize the dictionary among boys is the task which the official magazine of the Scout Movement, *Boys' Life*, has undertaken. That magazine has turned a study of the dictionary into a game, and called it "Scouting in the Dictionary." Forty-four prizes, valued at $100, will be given to winners. Appropriately these prizes include six dictionaries (the first a $30 and the second a $27 book) twenty story books from the library approved by the Library Commission of the movement, and eighteen subscriptions to the magazine.

The contest that is proposed is simply the forming of words out of the letters contained in the phrase "Boy Scouts of America." But with its stories about the dictionary *Boys' Life* is impelling boys to search the dictionary in this "game" and to abide by its definitions, and in this way is opening to them a new world of words, which will make for the enrichment of their ideas.

Teachers may be able to use this contest to quicken the interest of some of their classes. If so, the Boy Scouts' magazine will be very glad to cooperate with them. The address is 200 Fifth Avenue, New York.

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THE Psychological Clinic

For the normal development of every child

PSYCHOLOGY HYGIENE EDUCATION

Editor: LIGHTNER WITMER, Ph. D., University of Pennsylvania

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